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The Lookout

FAO Boat Congress To Analyze Design

One of the main problems facing the fishing industry of the world is to determine design and construction criteria which will ensure that fishing boats will be both safe and sea-kindly and, at the same time, operate efficiently.

A function of the forthcoming Second World Fishing Boat Congress in Rome, Italy, April 5-10, will be to focus attention on this question and a great many of the papers presented will deal with such problems as stability and sea-kindliness.

In an interview at Rome, Jan Olaf Traung, chief, Fishing Boat Section, Fisheries Div., FAO and secretary of the Congress said: "In many ways the problem involves contradictions. For example, a vessel with a long period of role is much more comfortable for the crew and provides easier working conditions which contribute to the efficiency in operation. But, there is more danger of capsizing than a vessel with a short period.

"Naval architects and boat builders throughout the world need a simple method of establishng the stability of fishing boats on the drawing board, but there is not sufficient data for this purpose. Judging from the papers which are being contributed, I think we are approaching a point where universally accepted methods may be proposed."

Captain W. Moeckel of Germany proposes a simple diagram to show the period of roll in relation to the beam of the ship. He states that both short and long rolls are bad and proposes a minimum and maximum period, criteria which may be applied to any type fishing boat.

He is inviting architects in other countries to check his proposals by carrying out measurements at sea.

The naval architects from various countries are studying the problem of stability from many different angles. Yet it appears that they are coming to the same conclusions and these seem to be in line with the criteria proposed in 1939 by Professor A. Rahola of Finland.

One of the most controversial papers at the Congress is likely to be presented by Naval architect Dwight S. Simpson of Boston, Mass. He proposes a new way of determining scantlings of wooden vessels. Present rules call for scantlings thicker and heavier than necessary. Simpson proposes lighter standards for scantlings, which could reduce wooden boat construction costs as much as 10 percent.

NATIONAL FISHERMAN

The Fishing-Industry Magazine

Vol. 40 No. 2 March 1959

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P. G. LAMSON, President — GARDNER LAMSON, Publisher and Editor — D. M. STRICKLAND, Managing Editor

Publication Office: National Fisherman, Goffstown, N. H.—Hyacinth 7-4821

Formerly Atlantic Fisherman, Established 1919. Published monthly by Atlantic Fisherman, Inc.

Member: National Business Publications and Business Publications Audit of Circulation

Pacific Representative: Murray Bothwell, 234 E. Colorado St., Pasadena 1, Cal.—Ryan 1-9155

Accepted as Controlled Circulation Publication at Manchester, N. H.

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FISHERY PROGRESS

► International Co-op Meeting

A technical international meeting on fishery cooperatives is scheduled to be held in Naples, Italy, May 12-21, 1959. The Food and Agriculture Organization of the U. N. is in charge.

Working papers will cover such subjects as: fishery cooperatives in Europe; Fishery cooperatives in North America; prospects for cooperative action in fisheries; government and other services related to fishery cooperatives; cooperative education and training; and cooperative organization and methods in fisheries.

Participants will include representatives of both government fishery services and the cooperative movement itself.

► Sargent Takes New Position

Francis W. Sargent has resigned his position as Commissioner of the Massachusetts Department of Natural Resources to become Executive Director of the newly created National Outdoor Recreation Resources Review Commission. The Commission's office will be located in the Regional Offices Bldg., 7th and D St., S.W., Washington, D.C.

Mr. Sargent was also chairman of the Atlantic States Marine Fisheries Commission and his position on this commission is to be filled by G. Robert Lunz, director of Bears Bluff Laboratories, Wadmalaw Island, S. C., who was vice-chairman.

► Shrimp Research Report

First Research Corporation, Miami, Florida, has made time and motion studies of shrimp fishing operations along the South Atlantic coastline and the Gulf of Mexico.

The on-the-spot engineering studies included surveys of the shrimp fleet's preparation for sea, procedures for setting nets and trawling, handling the catch at sea, and unloading the cargo, as well as the use of fishing vessel time, vessel productivity, and types of vessels used.

This information has been published by the Dept. of the Interior in a two-volume report "Survey of the United States Shrimp Industry." Purpose of the report is to present conclusions and recommendations as to how the shrimp industry can best safeguard its welfare.

In addition to the fishing survey, there is also a section on shrimp processing plant efficiency, including plans for freezing and breading plant layouts as well as for canneries.

► Red Tide Predictions

University of Miami scientists have arrived at a formula combining oceanographic and weather data, which attempts to forecast conditions suitable for the expansion of the microscopic water plant responsible for the outbreaks of red tide. It can at least, forecast years when the red tide will probably occur and years when it is likely not to. It seems probable that outbreaks depend on precisely the right mixture of Gulf and fresh water at just the right temperature.

► Fleet Additions

Fishing craft over 5 net tons that received first documents during 1958 totaled 684 vessels, an increase of 83 vessels compared with 1957. Vessels which received first documents from the Gulf States area made up 40 percent of the 1958 total.

During December 1958 there were 28 vessels of 5 net tons and over which received first documents. Compared with the same month of 1957 this was a decline of 19. The major portion of the decline occured in the Gulf States. The Chesapeake Pacific Coast areas both showed an increase over the preceding year. The Gulf lead in total number of new vessels with 11.

► Improved Bone Detector

An automatic detector-rejector device, which will spot bone-bearing fish fillets and eject them from the conveyor line, is now a probability, the Dept. of Interior reports. The device is being perfected by Barkley and Dexter Laboratories of Fitchburg, Mass. under a contract with the Bureau of Commercial Fisheries.

The detector part of the system is somewhat like a closed TV circuit. An X-ray image of the fillet is picked up by a special tube in place of the standard TV camera. The image is transmitted by wire to a receiving set some distance from the machine.

There, it is converted into a visual image by a monitor, giving inspectors a view of the fillets away from excessive X-ray exposure. The ejector part of the system has not been completely perfected.

► New Use for Oyster Liquors

It has been brought to the attention of the Pascagoula Fishery Technological Laboratory that large quantities of highly-nutritive natural juices, expressed from oysters when they are steamed prior to shucking, are lost each year.

In an effort to utilize the juice, an acceptable canned oyster stew,

using the juice, milk, and oysters has been developed. The problem of preventing curdling when the stew was sterilized has been solved. This was accomplished by careful control of the quantities of salt and protein used in relation to the processing times and temperatures.

This development may have significance because at present, soups containing quantities milk are not normally marketed in canned unfrozen state.

► Wage-Hour Law Bulletin

The application of exemptions from the Fair Labor Standards Act for employees in the fisheries and seafood industries is discussed in an interpretative bulletin issued in February by the Administrator of the U. S. Labor Department's Wage and Hour and Public Contracts Divisions.

The new bulletin serves as a practical guide to employers and employees on how the Divisions interpret two exemptions. One is a minimum-wage and overtime pay exemption for workers employed in catching, processing, distributing and performing other specified operations on fish products.

The bulletin explains the application of the exemption to offshore and inshore activities. The other exemption is from the overtime-pay provisions applying to workers employed in canning fish.

► Fishery Legislation Status

Starfish Eradication: a bill introduced in February by Senators Bush and Javits, to provide that the Secretary of the Interior shall develop and carry out an emergency program for the readication of starfish in Long Island sound has been referred to the Senate Committee on Interstate and Foreign Commerce.

Classification of Frozen Fish Bits: The Saltonstall Kennedy Bill to make certain frozen fish blocks classifiable under paragraph 717 of the Tariff Act of 1930, introduced last month has been referred to the Committee on Finance.

The bill would add a new section to the paragraph, which would classify blocks of fish bits under the same category as fillets but at a flat rate of 2½ cents per pound.

Cooperative Bank: a bill providing for the establishment of a federal bank for fishery cooperative associations, has been referred to House Merchant Marine and Fisheries Committee.

Five-year Assistance: identical bills by Congressmen O'Neil and Lane and Senator Smith, to provide for a 5-year program of assistance to depressed segments of the fishing industry, have been referred to the Senate Interstate and Foreign Commerce Committee and the House Merchant Marine and Fisheries Committee.

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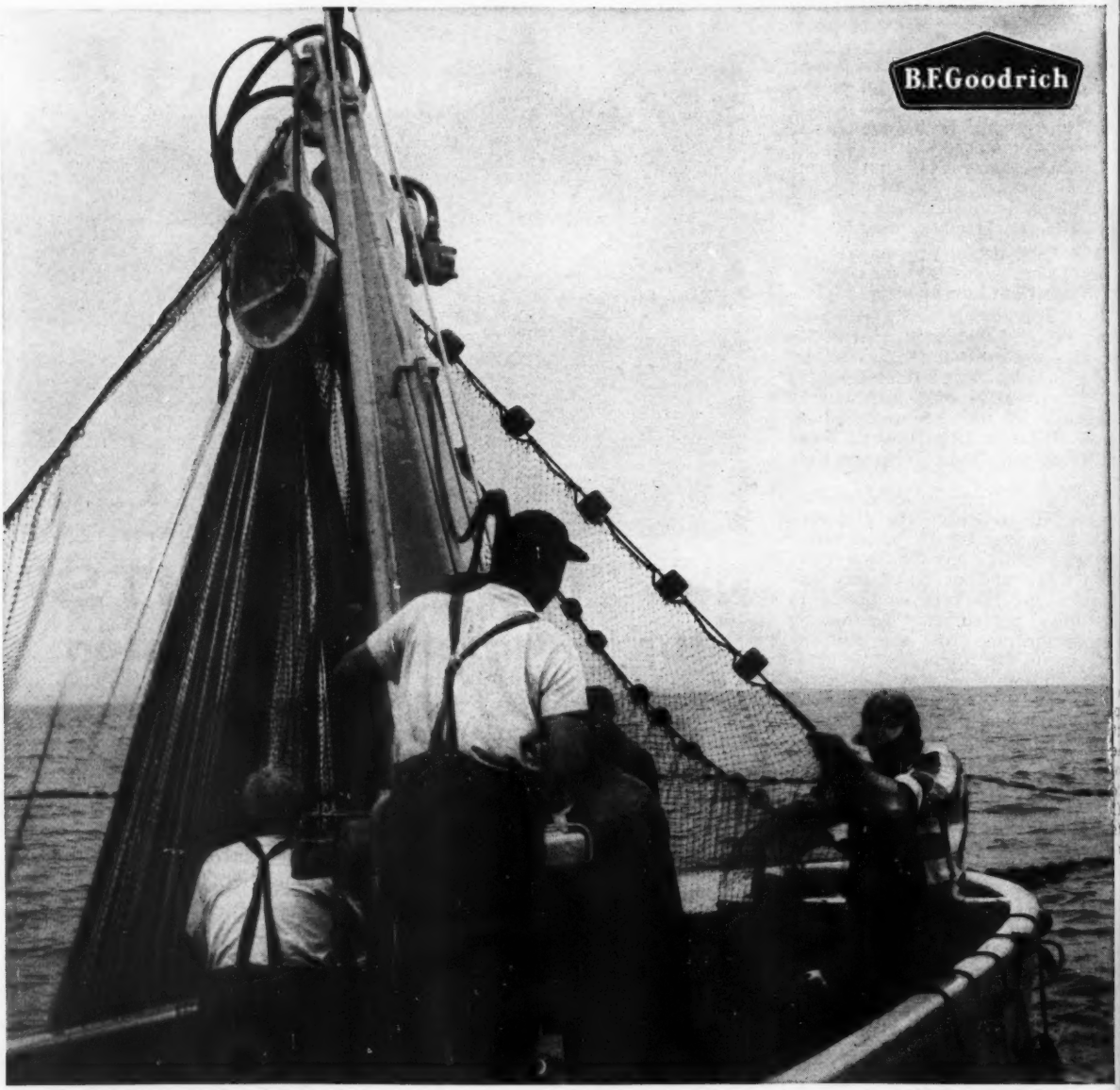

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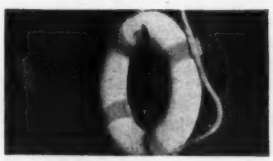

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Fisheries Key To Territorial Seas Deadlock

The United States must gain support of states desiring greater economic jurisdiction of coastal fisheries

On the tenth of December of last year, the U. N. General Assembly adopted a resolution convening a second Law of the Sea Conference at Geneva in March or April 1960, to reach agreement on the questions of the breadth of the territorial sea and fishery limits. The U. S. is already actively engaged in consultations with other governments with a view to reaching an agreed position on these questions which will be likely to gain acceptance by a two-thirds majority at the next conference.

Because of the requirements of national security interests and responsibility with respect to the defense of the free world, the U. S. cannot accept an extension of the breadth of the territorial sea out to 12 miles and must seek in every way possible to reach an agreement which will provide for a narrow territorial sea.

The success of our efforts will depend largely on our ability to solve the fisheries question. It seems that an arrangement envisaging a narrow territorial sea coupled with an exclusive fisheries zone, which preserves the right of those who have historically fished there to continue to do so, would accrue to everyone's benefit. It would strike a just balance between the interests of the coastal state and the interests of fishermen off another state's coasts. Some of our ablest and most experienced legal and fisheries experts are working full time in order to reach a solution of this problem along these lines. It is hoped that the exact terms of such a compromise can be formulated as a result of explorations within other governments, if possible prior to the 1960 Conference, as we have learned from the last Conference the importance and advantages of pre-conference agreement on positions of fundamental importance.

The Geneva Conference 1958

After the United Nations General Assembly called for a Conference on the Law of the Sea in 1957, the United States at once began extensive preparations. Dept. of State prepared exhaustive legal memoranda on the 73 articles of the International Law Commission draft and sent instructions to all diplomatic posts, informing them that the U. S. attached great importance to the forthcoming conference.

The difficulties faced by the U. S. when the Conference opened in February 1958 can scarcely be over-estimated. Compared with 48 nations at the Hague, 86 participated at Geneva. The entire Soviet bloc was insisting, for political and military reasons, upon a territorial sea of 12 miles or more in breadth. A total of 20 states were in support of the 12-mile limit for those reasons. The importance of that can be gauged from the fact that in order to gain acceptance for any proposition in the plenary session, a two-thirds affirmative vote is required.

The sole chance of preserving the 3-mile limit lay in reaching some agreement with those states whose desire for an increase was based on their wish to control fishing along their coasts for purposes of economy and conservation.

The initial U. S. position was based upon security grounds. Representatives were advised by those charged with the responsibility for national security that the importance of preserving the 3-mile limit was such that we were bound to make every effort to preserve it. After a careful review of every possibility, the U. S. decided that if we could gain general acceptance for a 3-mile territorial sea, to concede to coastal states an additional 9 miles contiguous zone in which they would have exclusive fishing rights. Therein lay the only possibility of reaching two-thirds agreement to continue the 3-mile limit.

When it became clear that such agreement could not be reached, the U. S. delegation offered a compromise proposal providing the territorial sea an extension of 6 miles, with the right of the coastal state to regulate fishing for an additional 6 miles, subject to historic fishing rights. It sought on the one hand to meet the economic interests of states which wanted to protect the fisheries off their shores, while, on the other, to preserve the rights of those having historically fished in such areas. The compromise attempted to accommodate the two conflicting aspects of the fisheries question; namely, the extent of the rights of the coastal state off its own coasts and the extent of the rights of foreign fishermen to fish off another state's coasts.

The attractiveness of the compromise was evidenced by the fact that in plenary session it received more votes than any other, 45 to 33, and lacked only seven of the nay votes of being adopted.

Adoption of Four Conventions

Four conventions, however, were adopted which constitute important additions to the body of codified international law. The Convention on the Territorial Sea and the Contiguous Zone provides a definition of the juridical status of the territorial sea and a system for delimiting such waters; it establishes the right of innocent passage and provides for a contiguous zone for certain specified purposes.

The Convention on the High Seas defines the high seas and lists a number of the important activities encompassed by the term "freedom of the high seas," such as the freedom to fish. This Convention also deals with a wide variety of topics such as the right of navigation, the status of ships, the immunity of warships and other government ships, the safety of navigation, penal jurisdiction in matters of collision, the duty to render assistance, the right of visit, the right of hot pursuit, pollution of the high seas, and the right to lay submarine cables and pipelines.

The Convention on the Continental Shelf provides for the exercise by the coastal state of sovereign rights for purposes of exploration and exploitation of natural resources up to a depth of 200 meters, or beyond to the limit of exploitability. The Convention defines the natural resources within the domain of the coastal state in such a way as to exclude such crustaceans as shrimp, but includes oyster beds and pearl fisheries.

The Convention on Fishing and Conservation of the Living Resources of the High Seas constitutes a comprehensive code regulating the conservation of the natural resources of the sea complete with a procedure for settling disputes. The United States tried very hard to have included in this Convention a provision establishing the doctrine of "abstention" as a rule of international law. In general terms, this doctrine provides that where a country or a group of countries have invested time and capital in the development of a fishery to a point of maximum sustained productivity, nations which have not formerly participated in such fishery should abstain from doing so in the future. After a resolution on abstention procedure failed to gain the two-thirds majority required for its adoption by the Conference, the Chairman of the United States Delegation stated that it will continue to be the policy of the United States to pursue the objective of the general acceptance of the procedure of abstention, and that the U. S. will enter into agreements with interested states which will incorporate this sound conservation measure.

From a talk given by Loftus E. Becker, Legal Adviser, U.S. Dept. of State, Washington, D. C. at the 52nd Annual Convention of the National Canners Assoc., Chicago, Ill.

Purse boats hauling menhaden seine net with Puretic Power Blocks.

Power Blocks Speed Menhaden Operations

Changes in methods, equipment, crews occur as blocks increase production facilities of East Coast industry

The hydraulic power block, bright new-comer to the menhaden fleet, is revolutionizing the industry on the East Coast. Still a fledgling in chronology (tested in December 1954) and growth (continuous adaptations are being made), the crew-reducing gear was invented by Mario Puretic of San Pedro, Calif., and is manufactured by Marine Construction and Design Co. of Seattle, Wash. Today it has taken over the major portion of the menhaden fishery.

Over a hundred boats were equipped with power blocks last year alone. All of the Smith organization representing a major segment of the East Coast menhaden industry, had been completely equipped with power blocks and hydraulic cranes. Other East Coast operations using the block included that of Raymond Lee Haynie, who runs New Jersey Menhaden at Wildwood, N. J., plus a plant on the Chesapeake Bay at Reedville, Va., and that of H. R. "Peck" Humphries of White Stone, Va., who heads Standard Products Co. The Standard Products fleet of ten boats, fishing along the Chesapeake Bay and in the Atlantic Ocean, has been equipped 100 percent with the new gear. Standard also ordered 12 blocks for its Gulf menhaden units.

Opinion Generally Upholds Power block

Speaking for the company, B. B. Edmonds, Jr., says the power block means: "approximately 50 percent more sets; crews have been cut ten men per steamer; pulling the net is laborious work and crews tire as the day goes on, resulting in less efficiency . . . the power block does not get tired; satisfactory proficiency is achieved after about 30 days' experience; wear and tear on net is greater, requiring expensive nylon nets; Standard Products has designed its own purse boats and purse boat equipment to facilitate use of the block."

Reaffirms Capt. Robin Routt of Foxwells, Va. with the Standard fleet: "The power block gives us the speed we need for modern fishing." Menhaden skipper Rostas, working for Fish Products Co. at Lewes, Del., declares: "It sure does save a lot of pulling!" Frank Tigmer of Beaufort, N. C. who pilots a porgy boat for Standard Products, defines the trend by reporting that whereas his operation formerly carried 24 men per boat, 12 now suffice. Capt. Wiley Lewis of Beaufort, who has operated the Harvey Smith boat, *Fish Hawk*, out of Port Monmouth, N. J., seems satisfied with his power block performance and speaks of reduced crews.

For the East Coast menhaden industry, Marco (Marine Construction and Design Co.) has developed a new crane design and a new power block drive which is somewhat heavier and considerably more powerful than the original units brought out several years ago. The new drive unit consists of a gear reduction box attached to the hydraulic meter, which increases the maximum net pull about three and one-half times, up to 3,500—4,000 pounds.

For the modified crane, the designers recognized that the net pull was not vertical but was pulling horizontally as well. The result is a considerably heavier crane structure. This crane is driven by a hydraulic system producing a pressure of 1,000 to 1,500 lbs. per square inch, in the fluid.

Maintenance of the power block consists in checking the oil in the hydraulic system and keeping the block greased periodically. After several seasons of use, the rubber lining the sheave of the block wears, and must be replaced by exchange of a spare sheave.

Changes in operation continue. Since the crews of menhaden purse boats are considerably smaller, a strapping winch has been introduced, mounted on the steamer. The winch allows the net to be dried up without straining purse boat crews. By lifting the net from the far side of the steamer, this winch concentrates the fish in the vicinity of the pump suction, enabling the fishing net to be emptied in a short time. The special winch eliminates the former necessity of boat crews lined up at the rail hauling the net in tight.

Advantages Found in Power Block

Menhaden seining with power block represents an historic operational change in the industry, and marks 1958's Summer and Fall as an important milestone.

"In the menhaden industry, we have attempted to adapt the power block to the present method of fishing," declares R. F. Allen, sales engineer at Marco. Then significantly, he states: "In the future, we expect the fishermen's method of fishing to adapt itself to the Puretic power block. This will no doubt result in a method which is somewhat similiar to that used on the West Coast, where considerably larger seines are now handled by crews of seven or eight men."

For the future, Allen predicts that all seine boats will eventually convert to the power block because of saving in dollars and man hours. He estimates that 90 percent of the East Coast menhaden industry today uses, or has plans to use, the power block.

Advantages recognized in the power block and Puretic system, as contrasted with the traditional hand methods, are, basically, that fish can be hauled from the sea faster, and with fewer men and less toil. Of these

advantages, perhaps less physical exertion is considered the most important. One of the leading menhaden captains explains that his crew is now able to make set after set without getting physical exhausted. With the new system, the purse boats can make a larger number of sets in any day, even when the fishing is heavy.

Some of the East Coast menhaden operators are conducting their own experiments with different methods of catching menhaden with power blocks. This business is as yet quite competitive, and most fishermen are not of a notion to share trade secrets.

Peter G. Schmidt, Jr., president of Marco, enumerated the additional benefits of power block during an International Fishing Gear Congress in Hamburg last fall. He declared the following: "Rough weather fishing is possible because of greater force exerted on the net and the stabilizing influence of net on vessel. Net wear is reduced in many types of fishing, and handling and repairing of net is facilitated. The net may be rapidly retrieved in non-productive hauls. For example, the net can be retrieved in ten minutes for a 300-fathom seine, putting the vessel in position to make repeated sets where more fish may be found. The net may be saved in an emergency, such as when the catch is attacked by sharks, or when the net is snagged, or when strong tides and winds necessitate getting the net aboard in a hurry.

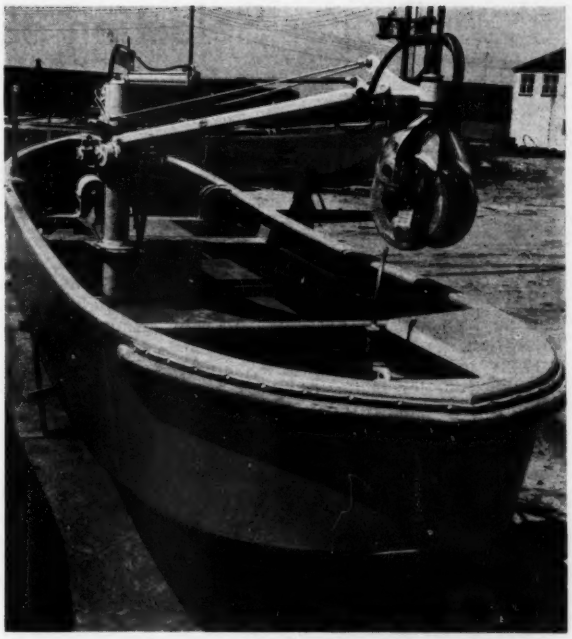
The basic idea of the power block, as conceived by Puretic, consists of passing the entire purse seine net through an elevated, free-swinging, self-powered V-sheave, so constructed that gravity wedges the net into the sheave, giving it the necessary action to pull the net out of the water and deposit it on deck.

Adaption to Menhaden Fishing

A 25-inch block, was developed to meet requirements of the menhaden fishery on the East Coast. This model is unique in that it is entirely supported from one side, with the other hinged. This feature was necessary because in menhaden fishing a considerable amount of cork line is pulled while the net is being pursed. By hinging the side open and lowering the block, the cork line only can be inserted into the sheave to aid in the operation. After the net is pursed, the entire net is inserted, the side closed, and the power block elevated while pulling the remainder of the web.

To adapt the power block to the menhaden purse boat, Puretic devised an hydraulically-operated power block crane, installed in the purse boat. The two purse boats set around the fish and purse in the usual manner.

Power block in operation on East Coast menhaden purse boat.



Puretic power block, specially designed for use aboard menhaden purse boats. Block installed on aluminum boat built by RTC Shipbuilding Corp., Camden, N. J. which has Goodyear rubber fenders and a tunnel and cage arrangement to protect nets from rudder and propeller.

Schmidt and Puretic introduced Norwegian type snap purse rings to solve the problem of having to split the purse line in the middle in each set. While the net is being pursed, the specially constructed menhaden power block is hinged open and the cork line is pursed. As soon as pursing is completed, the entire net is put into the power block, the power block crane is elevated and swung to convenient position, and hauling commences.

The power block crane is designed so that it can be swung in a 90-degree arc from side to side and raised and lowered by hydraulic power. In small boats of this type, if hanging loose, the power block has too violent a motion. Puretic, therefore, provided a pantograph motion on the extended jib so that the power block could be semi-rigidly attached through rubber mountings and yet would remain level at all heights of the crane. This was a valuable feature, as it is necessary for the power block to be able to swivel freely. Another unique feature of the crane is that the oil reservoir is in the column, with all hydraulic piping and controls mounted integrally within the unit. Installation requires the mounting of the hydraulic pump on the engine power take-off, running two hydraulic hoses to the crane. The three levers on the crane actuate the block, swing the crane, and raise and lower it at the convenience of the captain.

The result of using power blocks and the Puretic system, is a 25 percent minimum manpower saving, according to Schmidt. Manpower saving as interpreted by Puretic means: "Menhaden units with block-equipped purse boats can work with a crew of up to ten less men than required in the conventional method.

(Continued on page 32)

Proper Selection of Marine Transmissions

By Carl I. Benson, Jr.*

Marine transmissions may take any one of several forms, individual requirements determining the unit most suitable for each boat. In the market for a new engine, the boat owners certainly would examine carefully the products built by the long-established and reputable marine engine manufacturers. A marine transmission deserves the same study and consideration.

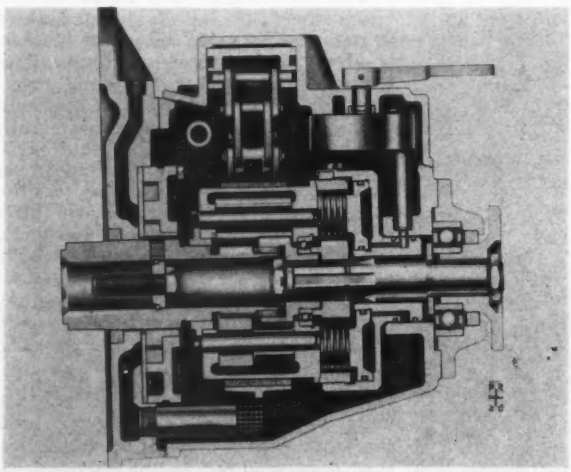
Early marine engines were connected either directly to the propeller shaft, or through a clutch to provide forward and neutral only. Engine speeds were in the range up to perhaps 1000 rpm, so turning relatively large wheels at engine speed offered no problem. However, it was obvious that something more was required, namely a means to reverse propeller rotation so as to provide a braking effect on the boat, and also to increase maneuverability. This need resulted in the development of the marine reverse gear in several designs, the most popular of which took the form of a planetary gear and provided reverse speed about 50 percent of forward speed.

As marine engine ratings began to climb in both speed and horsepower, additional burden was placed on the marine transmission. After World War I, speeds were reaching over 2000 rpm, and it soon became necessary to re-examine the basic transmission design from two points of view. The 50 percent reverse, although a big step in the right direction, was still not entirely satisfactory, so the planetary design got a major overhaul in order to provide reverse speed approximately equal to forward speed. Our present marine transmissions retain this feature.

In addition, it was found that on large boats requiring large wheels for good efficiency, some means had to be devised for driving the propeller shaft at speeds lower than the rapidly-rising engine speed ratings. Thus the marine reduction gear was born, and in the early 1930's it attained a permanent place in the marine transmission field.

As engine speeds continued to increase, reduction ratios increased also. Marine transmission manufacturers soon realized that a wide range of ratios was essential in order that the proper unit might be specified for each individual case.

* Chief engineer, Paragon Gear Works, Inc., Taunton, Mass.



Cross section of new Paragon H series marine transmission, adaptable to gasoline engines and Diesels of comparable rating.

Until about ten years ago, only development of manually-controlled marine transmissions had been attained. But there was a growing demand for something easier to operate and positive in action. The manufacturer's answer was the hydraulic marine transmission. In ten years time we have seen this device grow from infancy to a major place in the industry. Present indications are that demand for the hydraulic unit will continue to increase.

Since the purchase of boat equipment generally requires a sizable expenditure the selection of an engine, transmission, etc. should be undertaken with the thought that it is a long-term investment. Particular concern should be given to quality and dependability, but long-term maintenance and service requirements must not be overlooked. This last consideration is particularly important, for equipment may require service ten, 20 or even 30 years from now. That sounds like a long time, but servicing marine transmission 20 or 30 years old is not uncommon, and marine transmission manufacturers are in a position to take care of such requirements.

The word "marine" is used advisedly, although it might equally-well be replaced by "heavy-duty", because marine service is heavy-duty service. Consider the fact that even though modern automotive engines are rated as high as 350 hp. at speeds up to 4800 rpm, any attempt to operate continuously at outputs even approaching these figures will literally burn up the engine. Ordinarily, loads on automotive engines will be fairly light, perhaps up to 30 percent or 40 percent of the maximum engine rating. Accordingly, automotive type transmissions may generally be considered light-duty jobs, for they transmit relatively low powers on a continuous basis, and are loaded somewhat higher only for very brief periods of acceleration or hill climbing.

Marine engines usually carry maximum ratings approaching those in the automotive field. However, it is important to note that a fishing boat is going to operate more or less continuously for hours at a throttle setting that corresponds to perhaps 70 percent or more maximum engine rating. Such severe conditions of operation explain the need for engine oil coolers and water-cooled exhaust manifolds to keep the engine from being fried. Imagine the automotive transmission if called upon to withstand that sort of duty!

A good marine transmission represents quite a large investment, but this is not the place to pinch pennies, when factors other than cost are considered. Starting from the boat design, a suitable wheel size and speed should be recommended by the marine architect as well as the horsepower required to propel the boat.

Having selected a suitable engine to produce this horsepower at some given speed, the next step is the marine transmission. If the boat is a light one, the wheel speed and engine speed may possibly be about the same, so all that is need is a reversing transmission of either manual or hydraulic type. Such a unit is commonly called a direct drive.

Obviously, the unit should be selected to match the engine power rating. Should the boat be heavier, and possibly slower, the wheel speed will be lower than the engine speed. This indicates the need for a reverse and reduction gear of comparable power rating to be attached to the back of the reverse gear. The reduction ratio is obtained by dividing engine speed by wheel speed.

The marine reverse gear usually takes the form of a planetary arrangement using a spur, helical, or bevel gear train. There are things to be said for each. But in

(*Continued on page 27*)

The components and operation of

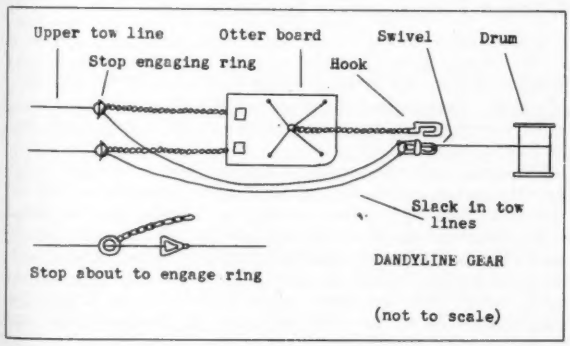
Otter Trawls on the Pacific Coast

Trawling gear has never shown a tendency to be stabilized, due to the fishermen's urge for the preservation of his fishery and his desire for bigger and better catches. Various types of nets and gear have been introduced from time to time, and have dominated the scene until better and more efficient ones have re-placed them. Minor variations still occur constantly enough, so that it is hard to find two nets exactly alike. Nevertheless, the differences do not involve the basic plan of operation.

Perhaps one of the most significant changes stemmed from the invention of the otter board in England during the 1800's, which rapidly replaced the beam trawl the world over. Attached, one to each net wing, these boards served to keep the mouth of the net more open than possible in a beam trawl, and allowed the head rope to rise.

However, the otter board was not accepted in California, until around the 1930's, although it had been well taken in other parts of the West Coast. One of the more distinctive features of the otter board is a cable up to 100 feet long, connecting the board to the wing to permit wider spreading of the net mouth.

Otter boards as used in California range in size from five feet long by three feet high to seven feet. Thickness varies, but most boards are made from 2" planking with strap iron reinforcements and a heavy iron keel or lead filled pipe as a shoe. There are also some all-metal hydroflow boards in use.

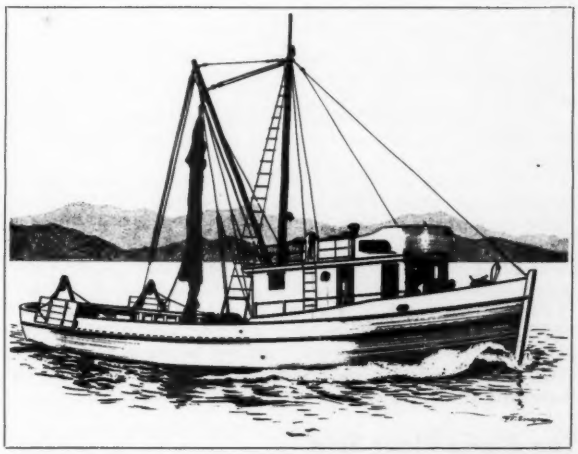


The weight of a single board varies from 200 to 800 pounds, though most weigh about 450 or 500. Bridles to the connecting cable (board to wing) are shackled to rings on the outer face of the board near the aft edge. The four bridles (in some cases rods) running to the towing warp are fastened on the inner face of the board centering at a point about one-third of the way aft of the leading edge.

In the early otter trawls, the end of the wing was lashed directly to the otter board. Later, the head and foot ropes were extended about six feet beyond the end of the wing, to allow seaweed and other trash to escape, before being picked up by the wing. Connecting cables between the wing and the board have been given a confusing variety of names such as towline, ground cable and ground line.

The term bridle is most always applied to short supporting lines intended to hold some rigid object in position.

The second and final part of material by W. L. Scofield, California Department of Natural Resources.



Typical Pacific Coast trawlers showing position of gallows and stowage of otter boards.

The four chains or iron bars that hold an otter board at the proper angle when attached to the towing warp (towing line, by which the vessel drags the net) are bridles, as are the short lines attaching the board to its connecting cable. In the beam trawl, the lines from each trawler head to the warp are bridles.

Another use of the term applies to the fore and aft lines, also called rib lines, which are run down the sides, top, or belly of a trawl net to strengthen the fabric by taking up part of the strain while fishing.

Variations in Determining Net Size

The mesh of a net is one of the openings or spaces inclosed by the knotted cords forming the fabric of the net. In California, mesh size is measured as the distance between two diagonally opposed knots of a mesh, when the mesh is pulled tight shut from the two knots. Thus, a two inch mesh opens up into a square one inch on each of the four sides, or 1.4 inch between the diagonally opposite knots. The open mesh is usually hung diagonally so that it appears as a diamond rather than a square.

Hanging has a bearing on the net length or depth because overall measurement generally depends upon the degree to which the meshes are opened. For example, a net of two-inch mesh that is 100 meshes deep would measure roughly 200 inches if pulled vertically till the meshes closed.

But, if pulled horizontally, the depth would be about a dozen inches (100 times the depth of one knot). If the same net were hung with the mesh squarely open, the depth would be 140 inches (100 times 1.4). This means that the measurements of length or depth are generally only rough approximations. Fishermen sidestep complications by figuring net measurements by the number of meshes.

In most nets the upper edge of the webbing is hung from a rope called head rope, head line, or corks line. Usually the head rope carries corks or floats of glass or metal to give buoyancy to the net. The lower edge of the net webbing is usually attached to a rope called foot rope, ground rope, or lead line, which generally carries lead

(*Continued on page 24*)

PACIFIC COAST

Propose Uniform Sardine Season for California

Legislation has been introduced in California providing for a uniform sardine season from September 1 to December 31. This will shorten the season one month in the north and leave it as it now is in the south. This season is for taking sardines for sale to reduction plants or to packers.

Other bills now pending in the Legislature include: (1) prohibiting the commercial taking of abalones in areas less than 150 ft. from any point on shore; the current restriction is 20 feet; (2) the sale of albacore weighing less than seven pounds, now restricted; (3) require that an applicant for a commercial fishing license spend 75 per cent of his time in that employment during the fishing season; (4) authorize sales of striped bass, presently only a sport fish; (5) permit baiting crab traps 18 hours in advance of opening of season if no attempt to lift them prior to opening hour is made; (6) set 12,500 ton limitation on anchovies for canning between October 1, 1959 and March 31, 1960 and 25,000 tons limitation for succeeding years. Present limitation is 35,000 tons.

San Diego Plant Sold

A group of San Diego, Cal. business men and tuna boat owners has purchased the South Coast Fisheries tuna packing plant at Terminal Island. The new firm will be known as American Tuna Canning, Inc.

Kenneth J. Berglund of San Diego, president of the new firm, said the plant is valued at more than $1,000,000. It will be transferred to the new owners as soon as negotiations are approved by the Los Angeles Harbor Department, which owns the land. Berglund was vice-president of the old Sun Harbor Packing Co. at San Diego and was a vice-president of the California Westgate Tuna Packing Co.

Vice-president of the new firm will be Wade Ambrose, and Attorney Fred Kunzel is secretary-treasurer. Other directors are M. Machado Medina, Edward P. Silva and Sam Crivello. Most of the tuna boat owners in San Diego are stockholders in the venture.

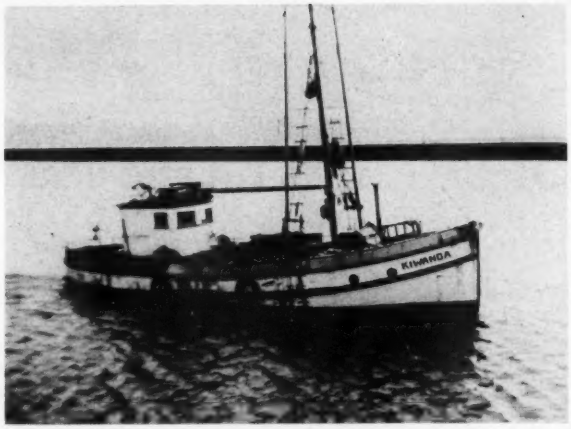
Manager for American Freezer Co.

Henry H. Goodrich, Jr., has taken over the equipment and lease of the American Freezer Co. in Moss Landing. For several years he was assistant manager of the Santa Cruz cannery here. Last year he branched out on his own and bought albacore locally for Franco-Italian cannery in San Pedro.

Goodrich comes from a line interested in the fishing industry. His grandfather was for many years associated with a British Columbia fish packing firm. His father was a vice-president of New England Fish Co., first in Astoria, Oregon and later in New York City. Goodrich plans a year-round operation handling crab, bottom fish, salmon, albacore and bait.

Big Increase In Seined Tuna

San Diego tuna clippers landed about 66,220 tons of tuna in 1958, compared to 60,360 the year before. The Southern California bait boat fleet, most of which is based in San Diego, brought in 99,370 tons of tuna in 1958, an eight per cent increase over 1957. The fish was landed at San Diego and San Pedro canneries. Total tuna catch for California last year was 157,770 tons, compared with 143,400 tons in 1957.



"KIWANDA" is owned by Conrad Rodli, Newport, Oregon. A halibut salmon, and tuna vessel, she is powered by a 60 hp. Caterpillar engine.

Most striking feature of California fishing activity last year was the huge increase in tuna landings by the San Pedro purse seine fleet. The seiners brought in nearly 40,000 tons, a 38 per cent increase over 1957 and an all-time high for this segment of the state's fishing industry.

Monterey Area Has Good Year

The best year of fishing in the Monterey area since 1948 has recently been reported. Fish products filled more than 204 freight cars, brought more than $2 million into the community as payments for fresh fish and cannery wages. Among those concerns doing business in Monterey are San Xavier Packing Co., Enterprise Packing Co., California Packing Corp., Hovden Food Products Co. and Carmel Canning Co.

Salmon Propagation Experiment

A resolution passed by the California Assembly and sent to the State Senate would request the State Fish and Game Department to take steps immediately to put into effect an experimental propagation program involving transportation by barge to the ocean of one million fingerling salmon.

The small salmon would be marked and by taking them directly to the ocean for release, many hazards would be bypassed. Another million would be marked and released in the Sacramento River to migrate to the ocean by natural methods. Biologists would be able to determine which method would be best in the future. It is believed that many small fish on their way to the ocean down the Sacramento River are lost because of the pollution and irrigation ditches.

Seattle Otter Trawl Landings

During February the Seattle, Wash. otter trawl fleet landed 1,883,000 pounds of fish in 59 trips as compared to 817,800 pounds in 39 trips in January and only 275,100 pounds in 17 trips in February 1958. Leading specie this February was true cod, with 823,700 pounds, followed by English sole, with 540,800 pounds and rockfish with 271,300 pounds.

Washington Men in Alaska for Fishery Talks

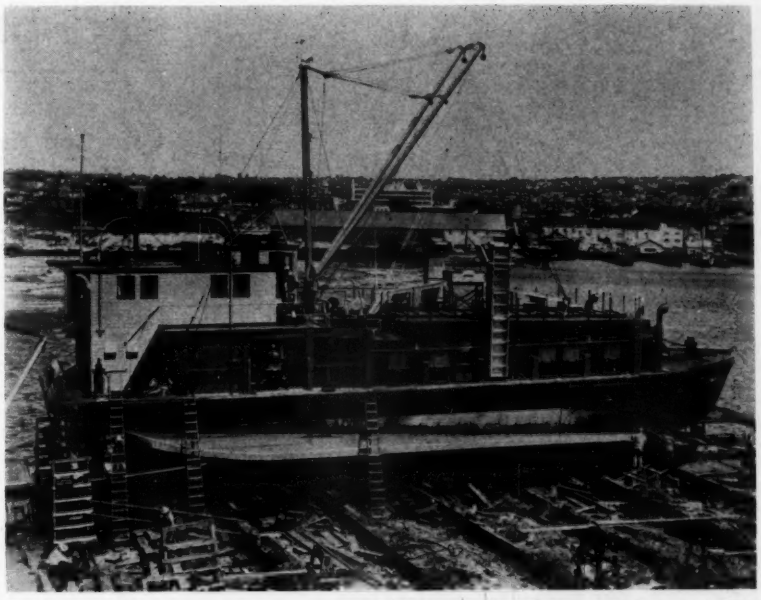
Eight members of the Washington Legislature and Milo Moore, director of fisheries, flew to Juneau last month to confer on fishery problems with legislators of the new state. The committee included Senators Victor DeGarmo, Olympia; Don Talley, Kelso and Harry S. Elway, Jr.,

West Coast Firm Leases Refrigerated Fish Scow

A long term equipment lease provided the financial key to putting into operation the world's largest refrigerated fishing scow, the *Jimbo*. The *Jimbo* has a capacity of 450,000 pounds of salmon and an improved refrigeration system that enables it to stay at sea 14 days.

Leasing the contract for the $165,000 vessel was negotiated by the National Leasing Co., Chicago, Ill., and included the vessel and all its equipment. It is one of the largest leasing deals ever made in the fishing industry. Leasing the scow was a West Coast packer and canner, one of the world's largest, which sought the long term lease in preference to tying up working capital.

The lease is for 7 years with 5 annual renewal options. The new refrigeration system, installed by Refrigeration Engineering Co., Seattle, Wash. keeps salmon in a brine solution refrigerated at 32 degrees.



World's largest refrigerated fishing scow "Jimbo" shown being fitted out in Seattle, Wash., was recently contracted by a West Coast packer and canner on a 7-year lease. It has a capacity of 450,000 pounds of salmon refrigerated in brine.

Hoquiam and Representatives Chet King, Raymond; Dick Kink, Bellingham and Audley Mahaffey, Seattle.

Sponsors of the legislation which approved sending the men to Alaska said it was urgent that Washington officials confer immediately with Alaska Legislators, whose acts may have a great effect on the Washington fishing fleet.

Following the meeting in Alaska a joint memorial was introduced in the House in Washington which would petition Congress to grant Alaska the same control of management and conservation of its fish and wildlife resources previously given other states.

Would Limit Number of Salmon Fishermen

A bill which would limit the number of commercial salmon-fishing licenses to be issued in any one year was introduced recently in the Washington House of Representatives. The new restrictions which would become effective in 1960, would fix the limit of troll-line licenses at 531, gill net licenses at 393 and reenet licenses at 79.

The director of fisheries would not be restricted from issuing a lesser number of licenses should he deem it necessary for the conservation and preservation of salmon.

Fishermen's Festival Held in Seattle

The 30th annual Fishermen's Festival sponsored by the Lutheran Church was held on March 15. This is a worship service invoking divine blessing and guidance on those in the fishing industry. It is held just before the departure of the fishing fleet for Northern waters. The Rev. Dr. O. L. Haavik, originator of the service, gave the principal address.

Oregon Asks for Limit on Japanese Salmon Fishing

The Oregon Senate last month completed action on a memorial asking that the Japanese be restricted in salmon fishing in North Pacific. It went through both Houses unanimously. The memorial asks President Eisenhower to conclude a treaty with Japan to restrict fishing by the Japanese.

Senator Walter Leth of Salem, told the Senate that Japanese catch almost as many salmon as Americans and Canadians combined, while the Americans and Canadians do all the propagation and conservation. He said the Japanese pose a serious threat to Oregon's salmon industry.

Astoria Fishermen End Strike

Astoria area otter trawl fishermen and the Fishermen's Marketing Association of Oregon, Inc., representing boat owners, formally signed an agreement on Feburary 10 ending a month-long tieup of the local fleet. Under terms of agreement, boat owners will recognize the Alaska Fishermen's Union as bargaining agent for the fishermen while local fish dealers agreed to recognize the marketing association.

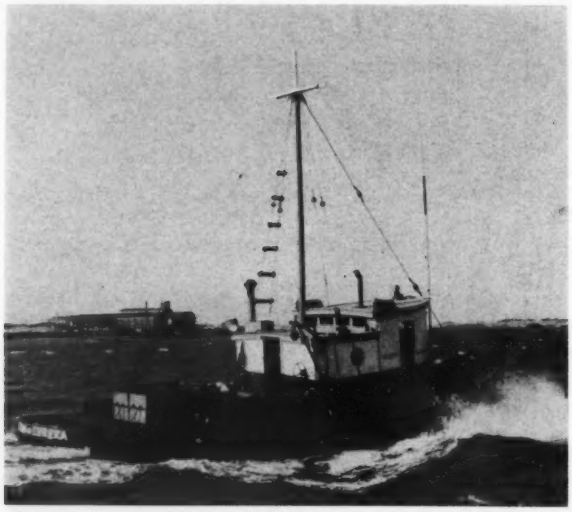
Prices approved by the two groups averaged approximately one-half cent per pound more than the previous price paid by dealers to the fishermen. Representatives of the two groups agreed to reopen negotiations on a still-disputed mink feed price settlement March 1. Fishermen were asking a price of 4 cents per pound. On hand for the signing of the agreement were Arthur Paquet, president of the marketing association; Philip Pinkstaff, vice-president; and Swan Ohman, business agent for the AFU.

Officers elected for the Astoria-Warrenton local which includes 67 fishermen were Paul Constantine, president; Kenneth Olsen, vice-president; and Ohman, acting secretary. Named to the fishermen's policy committee were Harold Sizemore, Seaside; Wally Bergerson, Warrenton and John Rhuby, Warrenton.

Seek Funds for Columbia River Fish

Immediate action is needed to stop the destruction of fishing on the Columbia River, according to Albert Day, director of the Oregon Fish Commission. He has proposed that the federal government appropriate vast sums to save both sports and commercial salmon fishing.

An immediate appropriation of $700,000 is needed, Day told the commission, and in addition, $1,000,000 a year is needed until the problems of fish versus dams are solved.



The "Lillian" is owned by C. Hubbard, Eureka, Cal., who uses her for crab and salmon fishing. She is powered with a D315 Caterpillar engine. Equipment includes RCA Radiomarine radio, Wood Freeman automatic pilot, Raytheon Fathometer and Loran.

Prohibits Salmon Traps in Alaska

Acting Gov. Hugh J. Wade last month signed a law prohibiting trap operations in Alaska waters, except in inland streams. For the 1959 season the Federal Government will control the fisheries in the new state. Traps also would be operated under proposed federal regulations, which have not yet been signed by Secretary of the Interior Seaton.

Trap operators recently told Seaton that elimination of traps would be damaging to the industry. They also stated that it would take six or seven years to provide enough of various types of gear and boats to allow an adequate annual harvest of salmon.

Alaska Bans Drums on Purse Seiners

Legislative action to outlaw the use of drums in purse-seine operations in Alaska was completed late last month.

The Senate sent to the governor a House-approved bill prohibiting use of the gear—but exempting power blocks from the restriction.

Libby, McNeill Sells Alaska Interests

Libby, McNeill and Libby, Alaska's second largest salmon packers, last month sold all of its canneries in the new state and announced it no longer will carry on fishing and processing in the north. The new owners are a new corporation jointly formed by Columbia River Packers Assoc., Inc. and Ward's Cove Packing Co., Inc., to be known as CWC Fisheries, Inc.

Libby's, active in the northern salmon fishery since 1903, packed about 9 per cent of the total Alaska catch last year. Pacific American Fisheries, Inc. at Bellingham, with about 12 per cent, was the only company to do a greater volume.

Pacific Halibut Regulations

The International Pacific Halibut Commission has recommended to the United States and Canada Governments that all North Pacific halibut fishing areas except Area 3B shall be opened to fishing May 1 and that Area 3B shall be opened April 1.

The fishing areas shall be the same as in 1958—Area 1A south of Heceta Head, Oregon; Area 1B between Heceta Head and Willapa Bay, Washington; Area 2 between Willapa Bay and Cape Spencer, Alaska; Area 3A between Cape Spencer and Shumagin Island; Area 3B waters west of Area 3A, including Bering Sea.

NORTH ATLANTIC

Cape Cod Fishermen Attend Hearing On Year-Round Dragging Proposal

More than 100 skippers of the Provincetown fishing fleet, accompanied by some 300 of their crewmen, attended a hearing in the State House in Boston on February 25. The hearing was on a proposal that year-round dragging and otter trawling be allowed in the sheltered waters close to the shores of Provincetown, Truro and Wellfleet.

The purpose of the hearing is to legalize dragging between May and November, the period in which both dragging and trawling are stopped. Originally dragging and trawling had been banned in the end of Cape Cod Bay as a conservation measure. Then, during the progress of World War II, the ban was lifted. The war over, draggers and trawlers continued to fish inside the bay off the three towns, because, although the ban again was in effect, it was not enforced. Then last year, enforcement was resumed.

Opposed to the year-round dragging were representatives of lobstermen and other trappers of fish and from spokesmen for operators of party boats and anglers who look on taking of striped bass and bluefish as a sport.

First skipper to testify was Capt. Joseph Roderick who heads a five-man crew. He explained that the proposed bill would open up the area on the lee side of the tip of the Cape, where fishing can be carried on when easterly, northeasterly and southeasterly storms prevent operations in the outside waters. He said that during such storms as many as 115 vessels frequently fish along the lee shores.

The next proponent was Capt. Manuel Zora. He said he had to go inside the Cape Bay because the fish go there, and he always had made a living in the area until recently, when he got caught fishing 2½ miles from land and was fined. He stated that the government will get to own a lot of boats if this law is not repealed. Capt. Louis Salvador also testified that the Army had taken over some areas, thus preventing fishing.

Selectman John Worthington of Truro led the opposition. Treasurer of a cold storage company that operates traps in the area, he charged that the Provincetown meeting did not express the ideas prevalent in the Truro and Wellfleet areas. He asserted the trap fishermen produce 18,000,000 pounds annually of the type of fish the draggers don't bring in.

"Florence and Lee" Fitting Out

The former Gloucester trawler *Florence and Lee* is fitting out at D. N. Kelley & Son, Inc., Fairhaven, and will join the New Bedford fleet. It has been the largest job undertaken on an all-steel vessel at the Fairhaven yard since World War II. Her owner is Ernest J. Flood of Rochester, and her sister ship, the *Hilda Garston*, has been fishing out of New Bedford for some time. She is powered by a 450 hp. Fairbanks-Morse Diesel which has been completely overhauled. She has a new mast, gallows, frames and booms.

Scallop Prices Highest in Years

John V. Mahoney of the Fish & Wildlife Service office in New Bedford, in a report of scallop landings for January stated that the average dockside price was 15 cents a pound more than fishermen received for the shellfish in January 1958. The average price was 63 cents a pound and was the highest monthly figure for the sea scallops since January 1955.

Mr. Mahoney attributed the high price to the drop of 2,000,000 pounds in scallop freezer holdings, increased advertising, use of more scallops by the military and a drop in landings in New Bedford. A total of 52 scallopers

Draggers tied up at Gosman's Dock, Montauk, N. Y. On the inside is the 50' "Helen II", owned by Capt. James Degruiccio of Brooklyn, N. Y.; outside is the 45' "Diana" owned by Capt. Robert Ceslow of Montauk and powered with a 165 hp. General Motors Diesel.

made 89 trips in January to land 793,000 pounds of scallops valued at $497,000. The drop in landings was attributed to bad weather and the fact that more scallopers converted to dragging operations this year.

Gloucester "Pogie" Bill May be Withdrawn

Prospects were bright last month that Gloucester's $2 million pogie seining fisheries will not be hurt by a bill now before the State Legislature's joint committee on natural resources. Gloucester pogie seining fishermen were expected to write reassuring promises to interested State Representatives that the fishermen would not bother the sports fishermen and party boats off Plum Island.

State representatives also assured Capt. Raymond Kershaw, manager of the whiting association, that once these written promises are received, the State representatives would bend every effort to withdraw the bill.

The bill would prevent any dragging, seining or trawling within the three-mile limit. If passed by the State Legislature the law would hinder Gloucester's pogie seining industry, according to fishery leaders.

Fish Pier Question up to Court

The Gloucester Community Pier Association Inc., which has operated the State Fish Pier for over 20 years, has pinned its hope to stay solvent upon a State Supreme Court decision. Recently argued before the court was the question: "Should the association pay real estate taxes to the city for two fish meal plants in business on the pier?" The plants rent the land upon which their buildings rest.

If the court rules in favor of the association, it will be in a good spot, but if the decision goes against it, the association may have to pay the Commonwealth of Massachusetts more rent than it can legally collect from the tenants.

Maine Crabmeat Business Shows Good Growth

The Maine Department of Sea & Shore Fisheries reported last month that crabmeat production last year totaled 181,560 pounds, more than twice the amount produced in 1953. The dollar value of last year's production was nearly $46,000 to the fishermen.

Demand and production have increased since 1955 when only 74,300 pounds were produced. Commissioner Ronald W. Green attributed this increase to a better quality product and new methods of packing and canning.

Wage Contract Discussed in Rockland

Negotiations for a new wage contract for the employees at 40-Fathom Fisheries was held last month between the representatives of the Maine Fishermen's Association and management, according to Henry Gallant of Rockland, who was re-elected president of the Union.

Discussions on a new contract, to replace the one which expires in 60 days, was part of the annual meeting of the Association held recently.

Other officers re-elected at this meeting were: Winfred Williams of Thomaston, first vice-president; William Molloy, Rockland, second, vice-president; Mrs. Hazel Hopkins, Rockland, secretary; and Mrs. Lillian Messer, Rockland, treasurer.

New Bills Concern Herring Weirs

Rep. Byron P. Young of West Gouldsboro entered two bills in the Legislature last month which concern the operation of herring weirs in the coastal waters of the state.

One provides that a herring weir which is not in operating condition and able to catch and hold fish by July 1 of any year shall not be considered a fish weir under the terms of laws governing such operations for the remainder of that year. The same bill defines a fish weir and stipulates that it must be prepared to catch and hold fish to be considered a weir. There are many weirs along the coast which are not used in some seasons and the law has never been clear on the rights of seiners near an unused weir.

The other bill provides that the protection of the fishery laws will not be afforded weirs not licensed under the licensing code governing fishery operations in the state.

Morgan with Northeast Communications

Warren Morgan has joined Northeast Communications & Engineering Corp., Portland, Me. as member of the firm and sales manager in charge of marine electronic products and General Electric two-way communication equipment.

Morgan is well-known in the electronics field, having previously operated his own business, Commercial Electronics Service of South Portland, which has been consolidated with Northeast. At one time, Morgan was associated with Sargent, Lord & Co. Robert Harris, sales engineer, has resigned from the Northeast firm to enter another field of electronics.

Ote Lewis, Ash Point, Me. lobsterman and new type lobster trap which he designed to prevent escapage.

Maine Man Designs New Lobster Trap

Ote Lewis, veteran Ash Point lobsterman, has designed a new style lobster trap. He feels he has solved the problem of the lobsters escaping once they have been enticed into the trap.

He has done away with the funnel hoops, guy lines and the parlor head. In their place he has knitted and installed two nylon heads which run from side to side with a diamond opening in the center. The trap has four openings, two on each side.

Lewis' theory is that the lobster can enter from either side and must go downward through the diamond opening to get the bait on the trap bottom. Once in the base of the trap, he says that the creature can go over, under or behind the head, which has no maze of guys as in the old traps. but cannot get out the diamond opening through which he dropped in his quest for food.

Boat Safety Committee at Portland

A boat safety committee was formed at the monthly meeting of the Associated Fisheries of Maine, held in Portland, Me. on March 5. The group will work with the U. S. Fish & Wildlife Service in its program to promote increased safety at sea. Causes of accidents will be investigated and preventive measures suggested.

The Portland committee members are Capt. A. J. Pedersen, marine surveyor, chairman; Harold Gowen, boat owner; Capt. Norman H. Olsen, skipper; William H. Payne, Jr., insurance representative. Capt. Harold Paulson is president of the Association which represents all segments of the fishing industry and allied interests.

Boats Hauled at Story's

Portland fishing boats recently hauled at Story Marine Railway, So. Portland, Me. include Bernstein & Jacobson's 60' *Alton A.* for sound gear and rail repairs; Capt. Norman Olsen's *Crescent,* transducer for new Edo fish finder; Isadore Bromfield's trawler *Ocean Life,* for hull welding around the stern and rudder port; and Harold Gowen's *Surfman* for transducers to operate Edo fish finder and Raytheon depth recorder.

Rhode Island Quahaug Bill Reintroduced

Quahaug dredges would be given access to extensive new areas in the East Passage of Narragansett Bay and the Sakonnet River under legislation introduced in the General Assembly early last month.

Identical bills introduced in both chambers duplicated a bill which was passed last May 16 but vetoed by former Governor Roberts on the ground that a "comprehensive survey of the areas designated" should first be made by the Department of Agriculture and Conservation.

The new legislation would authorize the director to open for quahaug dredging, from December 1 to March 31, an additional 1,000 feet in the Sakonnet River below the East Power St. dock in Portsmouth, and all of the East Passage and the mid-bay area up to an irregular northerly boundary running from the north tip of Conanicut Island northwesterly to Wild Acres in North Kingstown and thence easterly to Pine Hill Point on Prudence Island.

Identical resolutions also were presented in both chambers appropriating $30,000 for transplanting of quahaugs by dredge boats, in the off season, to the dredging area in the Sakonnet River.

Hearing on Galilee Fishery Expansion

A public hearing on the proposed expansion of the commercial fishing industry at Galilee, R. I. was held last month and not one objector was heard from among the 25 persons who attended. J. J. Dykstra, president of the Point Judith Fishermen's Cooperative, said that the firm's $2,500,000 annual sales could be increased from $1,500,000 to $2,000,000 more if the industry were allowed to grow.

Among those present were property owners from Great Island, Salt Pond Acres, Snug Harbor and other nearby localities. John Cottle, a fisherman and resident of Great Island, gave the committee a list of seven year-round residents of the area whom he said gave him permission to say they do not oppose plant expansion.

B. B. Blount Retires

Byron B. Blount of Warren, who has been associated with Rhode Island's shellfishing industry for a half century retired recently to devote his time to the promotion of shellfish conservation practices in the states of the eastern seaboard. Blount has been vice-president of the Blount Seafood Corp. for 15 years and prior to that he operated E. B. Blount's Oyster Co. for about 35 years.

Blount has written a history of the oyster industry in Rhode Island and is a director of the Narragansett Bay Home Owners' Assoc., which opposed the establishment of an oil refinery in Jamestown. He has done conservation work on the Atlantic Coast and in the Gulf of Mexico and has carried out exploration programs for canneries in those areas.

He has been active with the Atlantic States Marine Fisheries Assoc. and has seen some of his recommendations to that organization carried out, including a census of the quahaug population of the Nantucket Sound which was performed by the Fish & Wildlife Service.

New Jersey Clam Bill to Senate

The controversial bill to permit dredging of shellfish south of the clam line passed the New Jersey Assembly last month and was to be brought up in the Senate for consideration. Oystermen and clammers, watermen and sportsmen were being assured that the bill would be pigeonholed again until it meets with the unanimous approval of county interests.

Assemblyman Robert E. Kay opposed the bill on the ground that it would be detrimental to fishing. County baymen have sought the opening of the lower bay with the use of a Shinnicock rake, but have opposed moves to have the area opened to dredging.

SOUTH ATLANTIC

Study of York River Shad By Virginia and North Carolina

Paul Nichols and Mayo Judy of the Fish & Wildlife Service, Morehead City, N. C. have arrived at the Virginia Fisheries Laboratory, Gloucester Point, to begin a cooperative study with Virginia scientists on the shad run in the York River. The purpose of the study is mainly to follow changes in the fishery. The scientists also want to check the importance of shad as a sport fish.

Scientists have developed improved tags in the last few years which will be employed for tagging shad this spring. Instead of the metal pin used to hold two discs against the back, streamer type tags will be used.

Nichols anticipates tagging about 1,000 shad at the mouth of the York River. Tags returned from fish caught on rod and reel or in nets will enable scientists to estimate the total number of fish reaching the spawning grounds. It is in the best interests of the sport and commercial fishermen to return all tags. A reward of 50¢ will be paid for each tag returned to either the Virginia Fisheries Laboratory or the Fish & Wildlife Service, Beaufort, N. C.

Mr. Nichols has studied shad runs from the Hudson River, New York to the St. John's River, Fla. Shad entering the rivers in Florida and all the way up to the Neuse River in North Carolina die after spawning. Further up the coast a larger percent of spawned shad return to the ocean. In Chesapeake Bay around 15 to 20 per cent of those reaching the ocean after having spawned return the following year. In Connecticut rivers and in the Hudson between 35 and 50 per cent return and appear in the fishery the following year.

Near the close of the spawning season, fish will be tagged on the spawning grounds to help scientists determine whether the home stream theory is true. If marked fish return in future years to the York River, it will substantiate that shad do return to their home rivers.

Hampton Roads Area Landings

Pound net landings for February of this year totaled 81,800 pounds, which was double the 40,900 pounds landed in January and nearly four times as many as the 20,800 pounds landed in February of 1958.

Hampton Roads Area landings for the month of February amounted to 2,166,500 pounds in 82 trips. In January the total was 2,034,600 pounds in 93 trips and a year ago the total was 2,916,200 pounds in 92 trips.

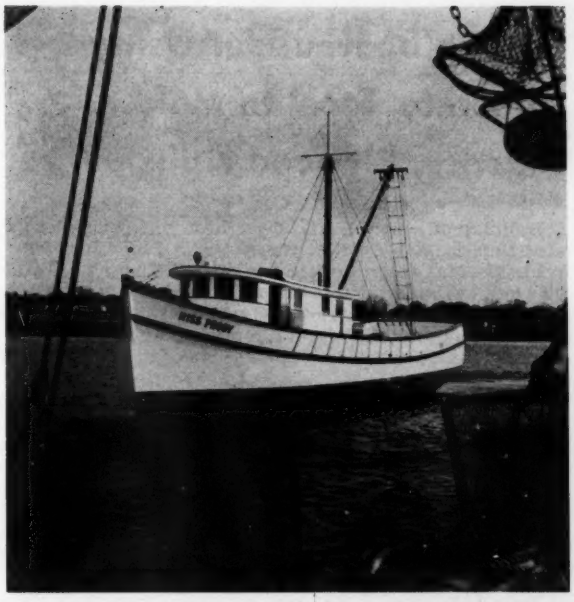
Leading specie in February was scup, followed by sea bass, porgy and butterfish.

Production of oysters in the Hampton Roads area throughout February ranged daily from 3,300 gallons to 6,300 gallons, but production was usually nearer the higher bracket. For many seasons, the Eastern Shore region has been short of oysters, but recent plantings of both shells and seed oysters are paying off now, and this season there were enough for the demand.

Good Catches at Portsmouth, Virginia

Good catches at higher prices are being made by the 12 draggers landing at Issac Fass, Inc., Portsmouth, Va. Fluke, porgies, and sea bass are the leading varieties, with fluke production than a year ago. The porgie catch is about the same as last year, while the early season catch of bass is running behind.

Two Gloucester, Mass. vessels are landing at the Fass plant, the *Lady of Fatima* and the *Cushmeer*, Capt. Louis Brown, which replaces his ill-fated *Evelyn Brown*.



"Miss Peggy", 67' shrimp boat, built by Diesel Engine Sales, Inc., St. Augustine, Fla. for Deep Sea Trawlers Inc., Fernandina Beach, Fla. has a 152 hp. Caterpillar D-342 Diesel engine.

Shrimp Boats Launched At St. Augustine, Florida

The 67-foot shrimp trawler *Miss Peggy* owned by Deep Sea Trawlers, Inc. of Fernandina Beach, Fla., was launched recently at Diesel Engine Sales, Inc., St. Augustine, Fla. The new boat is powered with a 152 hp. D-342 Caterpillar Diesel equipped with 3:1 reduction gear turning a 50 x 34 4-blade Columbian propeller on a 3-inch American Brass shaft. The engine is cooled by a Walter Clean-Flo keel cooler. Fuel capacity is 5000 gallons.

Miss Peggy has a 1500-watt Delco-Remy generator and a 750-watt O7AK-232E Onan light plant. Other equipment includes four 8-volt Yocam batteries, Goulds bilge pump, Goodrich Rubber Cutless bearing, 5-inch Globe Master compass, Walter Kidde fire extinguishers, and One-Mile-Ray search light. Navicote anti-fouling paint was used on the bottom. Deck equipment includes 515 1/2T Stroudsburg hoist and Columbian rope.

Two other trawlers were also launched there recently. "Miss Mary Ann", owned by Robert A. Wilson of Tampa, Fla., is equipped the same as "Miss Peggy" with the exception of a 2000-watt Onan generator, 5" Ritchie compass, and a fuel capacity of 7200 gallons.

"Southern Lady", owned by Lamar M. Driver of Savannah, Ga., is 57' long and powered with a 170 hp. 6-71-E General Motors Diesel with 4.5:1 reduction gear turning a 46 x 36 Federal propeller, also has similar equipment. The fuel capacity is 24000 gallons and the fresh water capacity is 350.

Tons of Florida Shad Destroyed

A demonstration of selective poisoning in Lake George has resulted in the death of about 280,000 pounds of gizzard shad. One black bass and a few bream were the only dead game fish seen on the lake. The 140 ton figure is unofficial, but is a minimum estimate. Final tabulation of the kill will be made later. The poison doesn't contaminate the fish, it kills by coating the gills and shutting off oxygen.

The demonstration was conducted by the Game Commission in order to compare the selective poison method with seining as a means of ridding the lake of rough fish.

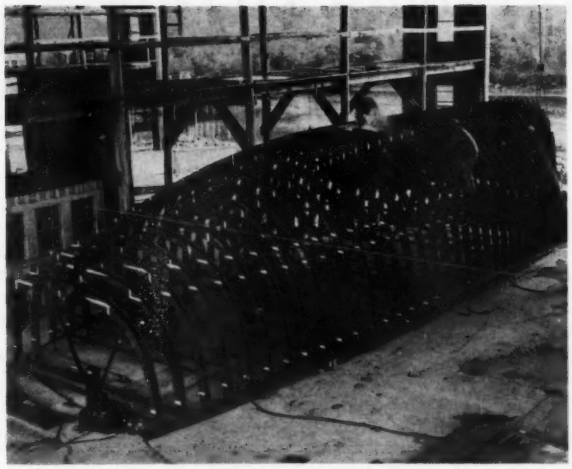
Florida Boatbuilder Using Concrete, Steel to Mold Plastics, Plywood Hulls

Building of a new type shrimp boat will get underway sometime in mid-April at the Newport Ships Inc., Newport, Florida, according to president William L. Weaks. The new shrimper, with a pressure-bonded glass and plywood hull, is the result of five years designing and tooling. It promises to be revolutionary in shrimp boat construction, with long life and little maintenance its prime attributes.

Constructed on a mold, the new vessel will be made of eleven layers of plywood with resin and fiberglass between each. The hull is molded into one piece while the deck and cabin is also a single molding. The mold, upon which the hull is formed, is a permanent structure, consists of a reinforcement of steel ribs, lined with steam coils. The inside is covered with concrete, while the outside is a terrazzo of white marble and concrete, ground polished and to contour.

Tests have shown that the boat has more than three times the strength of the average wooden shrimp boat, Weaks said. It is 20 percent lighter and will not soak up water, adding weight after launching. One size vessel, 72 feet long with a 20-foot beam will be turned out. Geodetic cored deck is used to eliminate deck beams.

Of one piece, laminated veneer, mahogany plywood construction, this type of boat has been made possible only within the past year by the development of a type of resin that seals out water. It is claimed that the boats will not have to be painted for 30 years and that barnacles can be removed in 30 minutes compared with the present two days. The hull is two and one-half inches thick. The center of gravity, 30 inches lower than is usual, gives greater safety and added speed. Reportedly, the average speed is about 13 knots compared to nine of ordinary shrimpers. According to the yard, cruising range will be up to 10,000 miles or one-third more than present-type boats. Such a range would make possible new shrimp grounds at greater distances from port.



Rib setup, basis for shrimp boat mold. Framework will be covered with concrete and marble terrazzo after being lined with steam coils. Hull for shrimpers will be formed over completed mold.

Capacity will be 40 tons of shrimp with 30 tons of the average shrimper as a comparison. The new craft will draw five and one-half feet of water instead of six, to permit operation in shallower waters. One design will be electrically equipped for freezing, and the other will use ice.

Designed to accommodate up to 600 hp., all boats will be powered with Caterpillar Diesels. Fuel and water tanks beneath the water line will be glass lined, giving a lifetime equivalent of stainless steel. The fuel capacity will be 9000. Air-tight bulkheads and foam insulation are included to prevent sinking. Extra hold space on the freezer boats permits the salvage of trash fish that could not be carried on ice boats before. All wood used in the construction of the boats is copper treated. The epoxy resins used are impervious to water and fungus protecting the inner wood indefinitely.

Protest Abandoning Fog Signal

The U. S. Coast Guard's proposal to discontinue the St. Johns River, Fla. fog signal and Light 7 near the mouth of the river at Mayport was opposed by a number of fishermen, pilots and representatives of other marine interests at a public hearing on February 18. The signal and light were destroyed October 2, 1957 and had been temporarily replaced by a lighted bell buoy.

Florida, Texas Shrimp Agreement

A reciprocal shrimp fishing agreement with Texas was approved by the Florida Cabinet last month.

Under the agreement, Texas shrimpers will be treated as Florida boat owners in obtaining licenses to fish in Florida waters. This means they will pay the resident's license fee of 20 cents per foot length of boat.

Florida boats already are licensed for fishing in Texas waters.

Maryland Rockfish Hearing Produces Conflicting Testimony

A hearing was held last month on the proposed rockfish bill which would ban fishing in the Chesapeake Bay and its tributaries during January and February. At this hearing hook and line enthusiasts renewed their arguments that the supply is dwindling.

But Dr. L. Eugene Cronin, director of the Chesapeake Biological Laboratory testified that passage of the bill would probaby have no real effect on the long-term supply of rockfish. He reported that at the end of the 1958 season, the abundance of striped bass in Maryland waters was high and that there is no present evidence that this species is being overfished.

David H. Wallace, executive secretary of the Oyster Institute of North America and an expert in fish research protested that the bill was not a good conservation measure and that it was not right to deprive some people of their livelihood.

Would Give Resources Board More Authority

A bill has been introduced by Delegate Whitmore of Anne Arundel which would reorganize the Maryland State Board of Natural Resources and give it full authority over state conservation agencies. The measure would create a board of 19 members to administer the state's natural resources, with all members appointed by the Governor in place of the present board of eight appointive and five ex-officio members.

The board would work through special three-man committees of board members to deal with existing state departments, including water pollution control. Each department would have a full-time director as at present but commissions administering them would be abolished.

The board would have authority to appoint an executive director and could request the resignation of any of its members by majority vote, with the governor naming a replacement. However, any changes in regulations would have to be cleared through a special committee of the State Legislative Council, the between-sessions study arm of the Maryland Legislature.

North Carolina Association Opposed to Yow-Frink Bill

The North Carolina Fisheries Association has gone on record as being opposed to the passage of the so-called Yow-Frink bill, now in the Legislature. The bill would open the commercial fishing grounds every day in the year to anyone who wants to take oysters, shrimp or clams. If this is done, the conservation of these seafood products will be gone.

Restrictions on the harvesting of shrimp and oysters are needed as it has been revealed that great quantities of oysters have been bootlegged into the Marine Corps reservations by civilian workers there who lived on the shore. If the law is passed to enable anyone to take oysters at any time, it will open this malpractice again, consequently with no health regulations upon it.

The Board of Directors of the Association was scheduled to meet on March 2 with a number of legislators to discuss the matter. Every member of the association has been urged to see his legislator and tell him that he doesn't want to be put out of business by a law giving the commercial fishing industry to weekend outboard motor boat fishermen.

N. C. Fisheries Committee Meeting

C. H. Holland last month released a report on the State Commercial Fisheries Committee hearing held at Durham last month. At the hearing, H. W. Justice of Onslow County appeared to ask permission to take oysters from his private bed in New River with a power dredge. He said otherwise he would not be able to harvest his oysters this season.

Cecil Morris, of Atlantic, chairman of the committee said it would be impossible to adopt a new regulation in the matter without a public hearing and that this could not to be held prior to the close of the oyster season on March 1.

Norman Perry of Colerain appeared to request that a ruling on food fish be repealed so as to prevent gill netting from taking rock fish in the summertime under the pretense of fishing for herring.

Col. Benneson of Cherry Point asked that the department mark the commercial fishing waters in the Slocum Creek area as federally-restricted territory on account of bombing, as a safety measure. Roy Watson, president of the N. C. Fisheries Assoc., said that he agreed with Col. Benneson but he also wanted the military and civilian personnel on the base to be restricted from using nets in the area barred to commercial fishermen.

Proposes Changes in S. C. Fishing Laws

George Warren of Hampton has told a joint meeting of the House and Senate Wildlife Committees that license and tax changes should be made in the state's salt water commercial fishing laws. He predicted that if this were done the state could just about double its revenue from this source.

Proposed were simplifying taxes for commercial fisherman; a standard scale of fines for commercial fishing law violations; licensing wholesale and retail dealers in fresh salt water products, bait dealers and power boats using commercial fishing gear.

Would Limit S. C. Menhaden Fishing

Legislation prohibiting the catching or releasing of menhaden and other non-food fish near the South Carolina seacoast has been introduced in the General Assembly by Sen. James P. Stevens of Horry.

Under the bill, no such fish could be caught or released less than one and one-half miles from the shores bordering the Atlantic ocean. It further provides that no purse net or seine with bars of less than three-fourths inch or a mesh of less than one-and-one-half inches shall be used for the purpose of catching such fish.

GULF OF MEXICO

"ESTOFLEET", 62' Port Isabel, Tex., shrimper built by Diesel Engine Sales, St. Augustine, Fla., is owned by Walter Rull. She is powered by a 150 hp. D-342 Caterpillar Diesel turning a 50 x 34 4-blade Columbian propeller through 3:1 reduction gear. She is equipped with Jabsco 2500-01 auxiliary bilge pump, Yocam batteries, Goodrich Cutless bearing, 7" Ritchie compass, One-Mile-Ray searchlight, 515½T Stroudsburg hoist, and Columbian rope.

Texas Shrimpers Believe Restrictions Unnecessary

Two proposed bills under House committee study are being bitterly opposed by shrimpers from all parts of Texas. One would prevent a commercial fisherman from using a net within 300 yards of shore in salt waters and the other would sharply reduce the shrimping season.

According to Dr. Gorden Gunter, a former biologist of the Institute of Marine Science at Port Aransas, there is no information concerning any species of fish, shrimp or crab along the Gulf on which to base any law or restrictive measure in the name of conservation.

Gunter stated that if estimates are anywhere near correct then the population of fishes in Texas bays must run between 150 and 200 million pounds in good years, of which about 5 per cent is caught by commercial and sports fishermen.

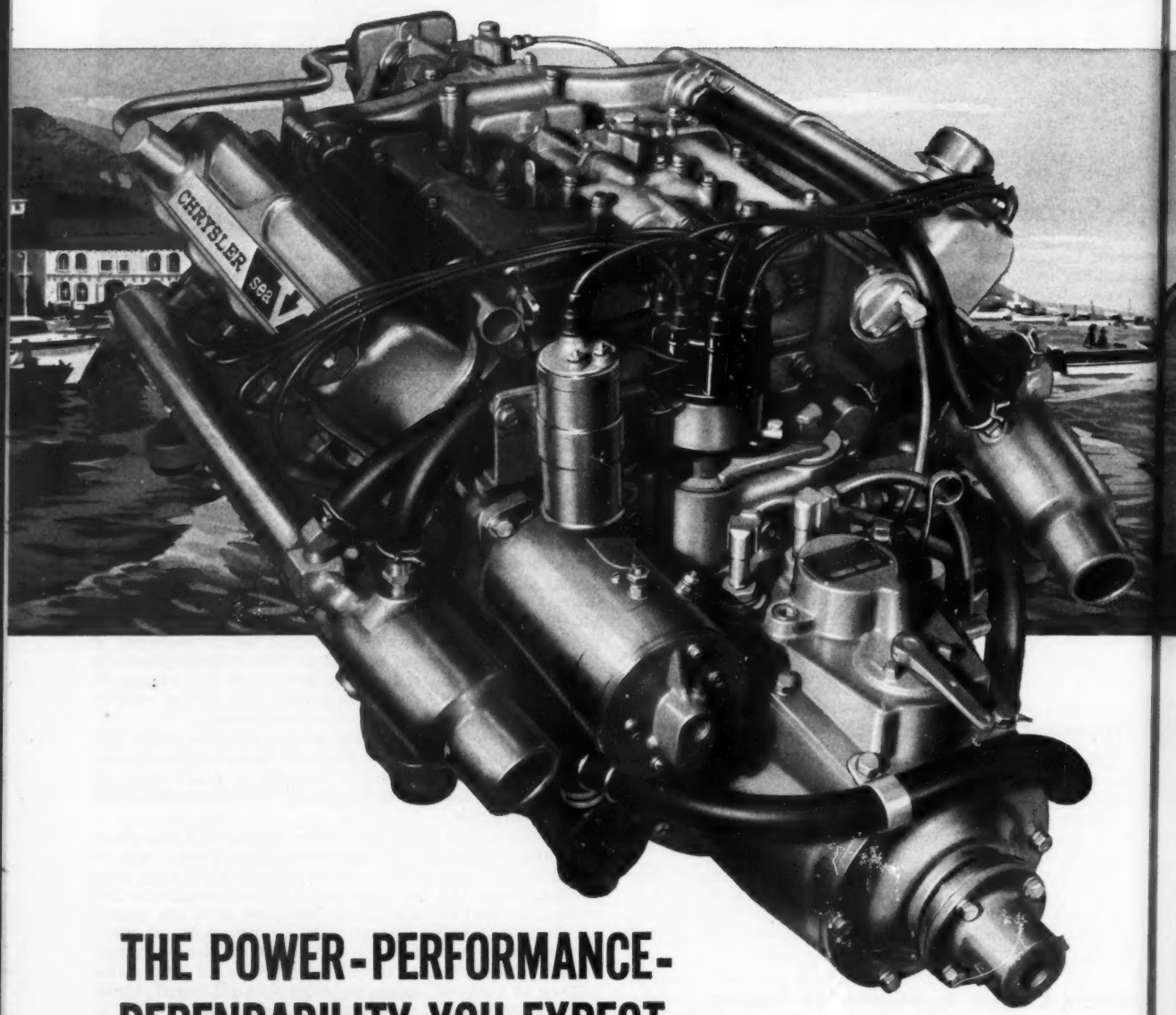
The bill would close the inside waters of Texas from December to August and Gulf waters from June 1 to July 15. It would also prohibit night shrimp fishing in bays except during the spring season for bait shrimpers. The shrimp conservation bill stipulates the sizes of shrimp which may be taken and specifies the size of net. It sets a license fee on shrimp boats at $30 and on shrimp houses at $50. The bill also prohibits handling of undersized shrimp to prevent taking of undersized shrimp in Mexican waters and selling them in Texas.

John Mehos, Galveston shrimp producer and president of the Shrimp Association of America, admitted the bill was not a cure-all and said the best solution is a series of uniform laws throughout the coastal states.

Port Mansfield Harbor to be Improved

National Bureau of the Budget has approved recommendations of the Corps of Engineers to take over the Port Mansfield, Texas channel and harbor, improve it and

177 H.P.



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maintain it. Port Director Charles R. Johnson said the proposed work includes redredging the channel from the harbor to the Gulf to a 14-ft. depth, and building two new jetties at the Gulf entrance.

Originally built by the Navigation District through a bond issue exceeding 2.5 million dollars, the channel was opened early in 1957. A storm in the west Gulf, however, caused sand bars to form at the Gulf entrance and made it unnavigable except for shallow-draft boats.

Engineers estimate $3,431,000 will be needed for the restoration and that $145,000 will be required for annual maintenance. Including funds already spent, this has increased expense to local interests to $828,000 for channels, basins, navigation, and $1,100,000 for terminal facilities.

Texas Commission Building New Artificial Snapper Banks

The Texas Game and Fish Commission states that work is now underway on the building of two new artificial snapper banks and for enlarging the present bank.

One of the new reefs is in the Freeport vicinity and the other is off Port Isabel. Each of these will consist of 600 automobile bodies, in units of 5 bodies bound together with chains and cables. A 50-pound concrete anchor will be attached to each unit to prevent drifting. Each reef will cover an area of about 40 acres. The contract price is slightly under $18,200 per reef.

The original reef near Port Aransas will be enlarged with the addition of 400 auto bodies to bring it to the same size as the other new reefs. Fantastic fishing results from the original small 200-car body reef off Port Aransas brought on fishermen's requests at other sites along the coastline.

New Fish Pass Being Dredged

Contractor's equipment was being assembled last month at Cedar Bayou where a new fish pass is to be dredged along the old natural channel between Matagorda and St. Joseph Islands. This pass will permit waters from the Gulf of Mexico to intermingle with those of Mesquite Bay and adjacent landlocked bays and lagoons.

Contract price for the work, less jetties at the Gulf entrance, is $198,300. Should it be found necessary to build entrance protection works in the future as a separate project, money now appropriated by the Texas Game & Fish Commission will be available.

Louisiana Shrimp Association Meets

A meeting of the officers and members of the Louisiana Shrimp Association was held last month at the Twin-City Fishermen's Cooperative in Morgan City at which time everyone present received an enthusiastic greeting from area shrimpers, dealers and political and civic leaders.

Following discussions, committees branched out to secure membership in the already 300-member organization, which has an ultimate goal in the thousands. The present membership drive will include not only those directly connected with the industry, but those who receive or fringe benefits.

Gulfport Mississippi Plant Expanding

A plant, originally known as Parks Seafood, with W. L. Parks as manager, located on West Pier at Gulfport, is now known as Fairhaven Fisheries, Inc., recently started on the construction of a 100 x 100 concrete and corrugated steel warehouse which was expected to be completed early this month. Instead of canning shrimp and oysters, it is catching and canning catfood exclusively for the A&P Company. The company has tripled its operations since it started and now employs 40 persons.

It buys the catch of nine independent boats, all locally owned, which make an average of three fishing trips every two weeks ranging as far as Empire, La., but catching most of their industrial fish just south of Gulfport.

Willard Calloway's Gulf Shores, Ala. shrimper the 60' "Silent Night" has a 115 hp. Caterpillar Diesel with 2:1 Snow Nabstedt reduction gear to turn the 42 x 32 Columbian propeller. There are Surrette batteries, Columbian cordage, Northill anchor, Bendix DR7 depth sounder, Pearce-Simpson radio telephone, Wickwire wire rope, and Stroudsburg hoist in the equipment and she uses RPM Delo lubricating oil.

Alabama Groups Seek To Improve Seafood Laws

A number of recommendations concerning Alabama's seafood industry are to be made soon by the Alabama Sea Food Protective Assoc. which has pledged its cooperation to the Conservation Department. Albert Johnson, association president, Carl Johnson, vice-president and Nelson Giese, director recently reported a proposed set of recommendations dealing with oysters and shrimp.

The group hopes to promote a long-range oyster planting program in Alabama waters and Carl Johnson stated that with proper planting methods and if seafood laws are properly enforced, oyster canning plants in the area will be able to operate with good oysters in the near future.

A recommendation will be made to limit shrimping equipment to one 50-ft. trawl per boat in inland waters. The association will also recommend that all shrimping be limited to 12 hours of any 24-hour period.

One of the major recommendations will be that no rake dredging of oysters be allowed in Alabama waters. Waters of Alabama were opened to rake dredging for approximately a month last year, causing numerous controversies within the industry.

The Protective Assoc., organized in February of last year by people connected with the seafood industry, planted about 10,000 barrels of oysters last year. These oysters have been tested recently and tests show they are growing well on the bottoms and should be good marketable oysters by next fall.

Another recommendation will be that bait shrimp dealers' licenses be set at a cost of at least $50. The recommendation will also stipulate that a dealer must maintain a place of business with the proper equipment, such as live bait boxes.

Could Double Mobile Bay Oysters

Two of the country's outstanding authorities on the seafood industry told an assembled group of more than 150 persons last month that the potential oyters production of Alabama's Mobile Bay area is one of the best in the south. James N. McConnell and Dr. Lyle S. St. Amant of the Louisiana Wildlife and Fisheries Commission spoke before the regular meeting of the Mobile County Wildlife and Conservation Assoc.

McConnell, who has some 33 years of service with the Louisiana department, traced the development of the oyster industry in that state from its modest beginning to its present position among the top producers of oysters in the United States.

McConnell and Dr. St. Amant agreed that production in the Mobile Bay area could be greatly increased and the yield per barrel more than doubled if the system now in use in Louisiana and the eastern and western states were adopted. In all oyster-producing states, with the exception of Alabama, Georgia and South Carolina, the land-lease system of oyster production is in use.

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Otter Trawls On The Pacific Coast

(Continued from page 11)

weights to stretch the webbing downward from the head rope. This lower edge usually scrapes over the sea bottom.

Taking Up

The tapering end of the trawl net terminates in a short section, relatively narrow and of heavy construction and small mesh, where the catch is concentrated while the net fishes. From the early days of the beam trawl this has been called the cod end.

To effect a taper in the webbing of a net, several pieces, each of a somewhat smaller mesh size, may be added, mesh for mesh, at the seam although it is rarely done. A second method is to cut the webbing on a diagonal, one horizontal for one vertical mesh.

The most commonly used method is to increase or decrease the number of meshes when hanging or sewing one piece to another. For example, every third mesh of one piece may be laced to two meshes of the other. The "terms take up" or "taking up" are used for either the increasing or decreasing the number of the meshes. Pieces laced or sewed together are "hung".

Often there is a strip of heavy webbing or hand woven meshes introduced as selvage. Skillful hanging uses the take up of meshes to gain the degree of fullness or taper desired when the net fishes.

Many trawlers use a snag cable or snag line ahead of the net, thereby preventing the tearing of the gear. Each end of the wire cable attached to an otter board on the inner side near the bottom aft corner, describes an arc several fathoms in advance of the net. This permits stopping the tow, when the line strikes a snag, before the net catches.

Shooting the Trawl Net

When ready to shoot the net, the vessel is brought to slow speed ahead. The cod end sack of the net is dumped directly over the stern of the vessel, the body follows, and the wings and the towlines are then payed out. Many boats have a platform in the stern where the net is stacked and from which the sack and body may be dumped with less effort.

When both boards are out, the speed of the vessel is increased so that they will be kept spread. Warp is then paid out as the net gradually settles to the bottom while towed at slow speed. The two warps are unwound evenly by keeping watch of the markers on each.

A common form of marker is an insert of a six or eight-inch strand of cable. Two markers are placed in the warp at the 50 fathom interval and a single strand at the 25 fathom mark.

The amount of warp played out is roughly three times the depth of the water being fished, but in most cases it is a little in excess of the three to one relation. In shoal water, the ratio may be five or more to one. In very deep drags it is frequently reduced to less than three to one.

Dandyline Used to Relieve Strain

When the drag is completed, the engines are stopped or reversed, the warps are taken in, and the boards are hoisted into place at the gallows. On a few of the boats they are still hauled by hand, in which case there can be plenty of slack for easy stowing of the boards. In most cases however, warps are power pulled and it is difficult to stow the boards if they are under strain from the net in the water. For this reason, the dandyline is used to ease the labor, and at the same time, to keep the lines taut.

In the usual form of dandyline, the board is hooked on the warp and towlines are attached to the board by a device that allows the line to run free, when the board is being stowed. The warp terminates in a large swivel, to the lower half of which the two towlines are shackled. The forward bridle chain of the board ends in a large flat hook to engage the upper half of the swivel.

Each of the two after bridle chains ends in a ring through which the towlines are threaded. Each towline is provided with a stopper which engages a ring, but will not

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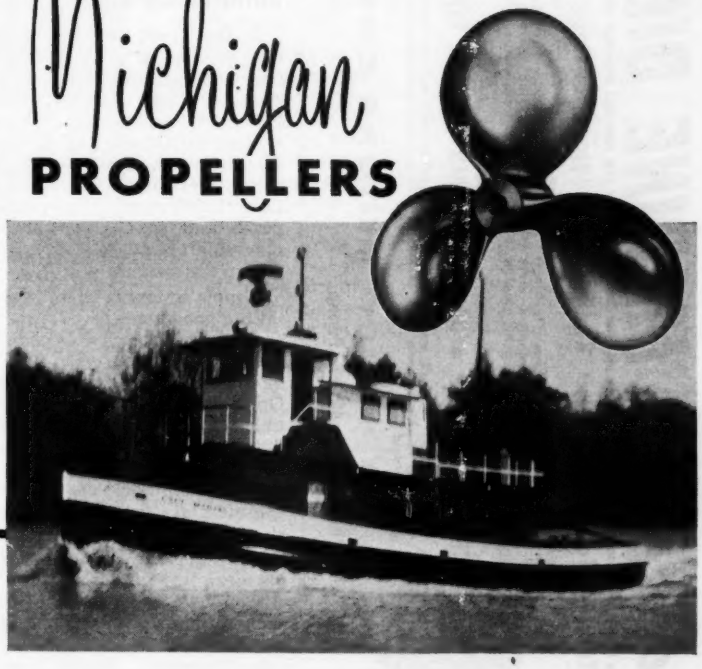

MICHIGAN WHEEL CO.
GRAND RAPIDS 2, MICHIGAN

pass through. Stoppers are placed so that there is some slack in the towline, above the ring. After the net is overboard, the towlines are payed out till their stoppers are ready to engage the rings on the board. The hook of the board is then attached to the swivel of the warp and the board is shot.

On the last drag, the board is brought alongside, engaged by a line from the boom, and hoisted to place at the gallows. The board is unhooked from the warp and the drum continues pulling the towlines which run free through the rings. If another drag is to be made, the boards are secured alongside without being stowed on the guard at the gallows.

Hauling in the Catch

Gallows on trawlers vary from wooden posts to structures of angle steel or metal pipe. The top of the gallows is about six feet above the deck or roughly four feet above the gunwale. Exact height is determined by the size of the otter board to be used and the location of the retaining slot in the vessel's guard rail, where the bottom of the board rests when stowed. There is a safety device for securing the top of the board against the gallows top.

In most cases, the gallows are placed at the stern of the boat, one on the starboard quarter and the other on the port quarter, about six to eight feet forward of the aft gunwale. The gallows (or at least the fairleads of the towing warps) should be forward of the rudder post, or the net, not the rudder, would steer the vessel.

The gallows are placed on the after deck even if the catch is landed on the forward deck. Placing the gallows on each aft quarter and bringing the net to one side of the after deck, is peculiar of the Pacific Coast. In most other regions, gallows are placed one forward and one aft, with the net hauled amidships, and the catch landed on the forward deck.

When the net is brought along side the vessel, the cod end may be hoisted by the boom, after which, the purse string or trip line is loosened and the fish drop on the deck. If the catch is too heavy for this, rope or cable called the splitting strap, is passed around the cod end and splits the load by pinching off a portion in the cod end. The other fish are forced forward in the sack of the net when the pinched section is hoisted or strapped aboard. The emptied cod end is then returned to the water so that another portion of the catch can be pinched off. The splitting strap is a cable or rope, free to adjustment, encircling the cod end at a fixed distance from the end, through small rings.

Those who oppose this method have a cod end laced along the top so that it can be opened and the fish dipped or ladeled out by the use of a long-handled dip net which is usually power operated. The dip holds about 300 to 400 pounds of fish at each lift. The operation is brailing.

A choo-choo line or light line running forward from the cod end is sometimes used in hauling a heavily laden cod end to receive part of the strain on the net webbing when landing the catch. Early paranzella type nets were provided with a loop, or ear, at each corner of the cod end, with lines from the ears running forward and attached to the starboard warp. Later nets omitted the two after ears, but retained the two forward loops from which bridle lines ran to the choo-choo.

On present day box or eastern nets, the choo-choo line is much shortened or omitted and attachment forward varies.

When a net with double towlines is hauled, recovery of the lower line is sometimes made easier by the use of a haulback line. The light line, 2½ to 3 fathoms long, is attached to the board, the other end is threaded through a ring on the upper towline and then attached to the lower towline. Pulling on the light line brings the two towlines together and over the gunwale where they can be hauled.

After the last drag, the boards are stowed. Usually the wings are stacked in the stern, ready for the next layout. The body and sack are piled on the stacked wings. On the last haul, the boom is elevated and the sack is hoisted to the top of the boom, so that most of the webbing is exposed to the wind for drying.

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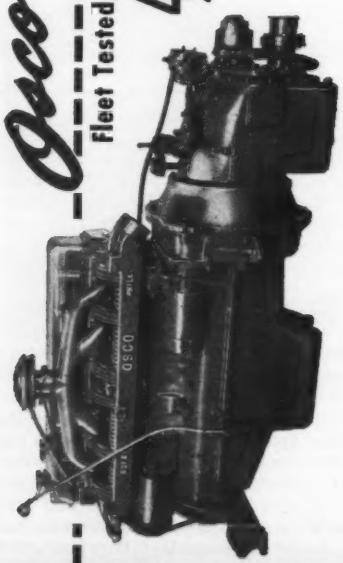

2½ MILLION proved ENGINE HOURS

GREAT LAKES

Cold Weather Brings Smaller Catches

In the Great Lakes area, commercial catches of preferred species of fish were generally light last month due to frigid weather conditions. However, commercial fishermen operating on Green Bay ice and Lake Michigan out of Wisconsin ports recently were making good catches of lake chubs, carp, sheepshead, yellow perch and, in fact, better yields of lake smelt than Michigan producers who were operating on Bays de Noc.

Illinois commercial fishermen were taking good commercial quantities of sheepshead and chub, smelt were scattered far and wide, and catches of them were comparatively poor. On Lake Superior, few boats were able to get into open water to lift nets. Line fishermen were getting fair catches of lake trout by the bobbing method, but this sort of commercial fishing is considered slow business.

Lake herring catches through the ice were fair for Minnesota, Wisconsin and Michigan producers in ice areas of the Lakes. Prices for these to fishermen were very high during late February. Jumbo smelt also were bringing premium prices.

In the bay areas of Lake Huron, fishing was good for smelt, herring and chub. Lake Erie ice fishing was generally fair, and the Michigan waters of this lake will reportedly open March 25. From Lake of the Woods, ice catches of whitefish and pike were fair, with an occasional exceptionally good haul reported.

Research Work Done on Smelt

In the American waters of Lake Erie, the charter vessel *Thelma G.*, operating out of Vermilion, Ohio, did research aimed at locating the availability of smelt to seine gear during fall months. Fishing operations were conducted between Conneaut, Ohio and the islands of Western Lake Erie.

Few surface or close to the surface schools of fish were observed. With a 100 fathom long lamprey seine in 40 to 60 ft. depths off Vermilion in three sets, the net took only trace amounts of adult and young of the year smelt and emerald shiners.

Large concentrations of fish were noted over most of the area indicated. Some from these schools taken with a 16-ft. trawl were identified as yellow perch, adult smelt and emerald shiners.

Lake Superior Has Lamprey-Free Area

In the middle of Lake Superior a comparatively lamprey-free area has been found by Canadian fisheries scientists. The area has been designated as a preserve for lake trout. It is part of Canada's campaign as a member of the Great Lakes Fishery Commission with the United States to establish lake trout populations in the Lakes.

The major portion of the Canadian research work on the lamprey is being carried out in Lake Superior and Lake Huron. As far as has been possible, all Canadian tributaries to Lake Superior which are suspected of being important sea lamprey spawning streams, were intensively searched for young lamprey. All major lamprey producers have been blocked by electrical and steel barriers.

Unique Launching of Fishing Tug

Because of 18-inch thick ice at the launching site on the East Twin River, a new fishing tug built by the Schwartz Marine Co. at Two Rivers, Wis., was slid onto the frozen surface and then towed by truck to open water near Lake Michigan. The tug, the *Morning Star*, was built for Frank LeClair & Sons, Two Rivers, and is 52 ft. long, with a steel hull. She is powered with a 250 hp. Diesel engine.

New Fishery Research Unit

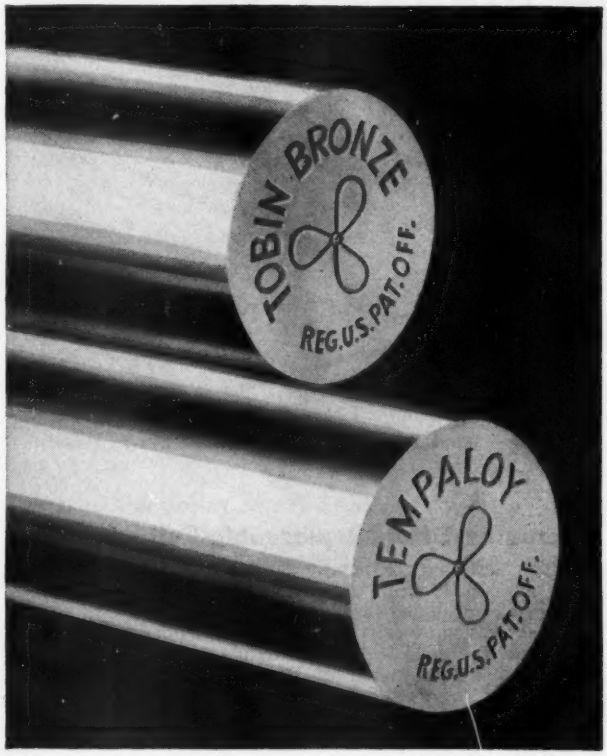
A new fishery research unit has been established at the University of Michigan at Ann Arbor. Known as the Great Lakes and Central Region office of the Bureau of Commercial Fisheries, it is operating under the Fish & Wildlife Service.

Serving science and industry, the regional office includes 18 states from Canada to Louisiana and from Pennsylvania and the Carolinas to Montana and the Rockies. This makes the tenth group located in the Ann Arbor area which have to do with fishery research and training. Nine of them are headquartered at the University of Michigan.

Central Mink Foods Formed

Central Mink Foods, Inc., has been formed at Medford, Wis., to produce mink foods from fish and meat by-products. The firm is headed by George McNamar of Medford.

SHAFTING THAT GETS YOU THERE—AND BACK



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TEMPALOY® -917, nickel-aluminum bronze shafting, was developed by The American Brass Company for uses requiring extra-high strength. Repowering with higher horsepower engines often means replacing original shafting, too. Tempaloy usually provides the needed extra strength with no increase in shaft diameter —saving costly alteration of bearing, stuffing box and housing assemblies. Features: toughness and high yield strength—high resistance to shock—excellent corrosion resistance—lighter weight—special straightening—close diameter tolerances—individually wrapped and trade-marked—reasonably priced.

Both Tobin Bronze and Tempaloy propeller shafts are available through leading marine supply distributors. For detailed information, see your distributor or write: The American Brass Company, Ansonia Division, Ansonia, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ontario, Canada. 6088

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Marine Transmission Selection

(*Continued from page 10*)

the final analysis any of them will do the job satisfactorily—provided that they are properly designed. In larger gear sizes, a countershaft design may be used, but this can be disregarded for smaller boats.

The usual clutch assembly arrangement has a multiple disc clutch for forward and lined band for reverse. Heavy duty marine uses usually require sintered bronze clutch plates used alternately with steel plates in the forward clutch. Drag in these plates when in neutral and reverse is undesirable because of heating and wear effects. This problem is as old as the industry, so look for mechanical devices to provide positive separation between each pair of clutch plates.

Look also for positive engagement of the multiple disc clutch. People frequently will slip a manually-operated clutch when manuevering, but this is murder on the clutch plates. The operator gets a tired arm after a brief period, so he can't keep this up too long, otherwise clutch plate replacement business would certainly boom. In a hydraulic gear, watch for positive engagement without gimmicks for slipping the clutch, as inadvertent operation for a period of time in the slip position would be disastrous!

Most gears to date use the lined reverse band. This is a simple and time-proven approach, and provides all that is required. Remember that reverse requirements are generally much lower than forward operation, so there is plenty of reserve capacity in such an arrangement.

In some cases, a second clutch is used in place of the reverse band. This gives rise to possible drag and additional heat generation, because these plates in the reverse clutch will have relative motion of full engine speed when driving in forward. Look again for mechanical devices to assure positive separation between each pair of clutch plates when this clutch is not engaged.

Bearings warrant attention. Heavy duty ball and roller bearings should appear throughout. Use of bushings should be minimized except in light duty applications where they may be justified on the basis of light loads.

Oiling is important. The usual situation on a marine engine with manually-operated gear is to have common oiling between engine and transmission. In some cases the gear is attached to the flywheel end of the engine, so separate oiling is employed. Hydaulic gears should always be separately oiled, otherwise engine sludge will get into the mechanism and foul it up.

Water jacketing has been pretty standard to get sufficient cooling, but look for separate oil coolers on the new models. The oil cooler should be a rugged unit, for it carries full hydraulic pressure, and a failure in service means that the transmission becomes inoperative. If your hydraulic transmissions uses the same type of oil as the engine that is advantageous. It means spare oil of only one kind need be kept aboard for emergency use.

So far the reduction gear has been mentioned only briefly. Look at this unit critically, for it is carrying full propeller load at all times. It must be of simple construction with a minimum number of parts. Bearings should be heavy duty construction to withstand combined radial and thrust loads. Gears should be helical to minimize noise. The greater the number of gears, the more the noise that will be generated. The simple ring and pinion type, which is available in many reduction ratios may be converted easily from one ratio to another if it is found that the first choice was not quite correct. This type has an offset in shaft centers, and the offset can be made either up or down depending on your proposed location of the engine relative to the propeller shaft. This is an obvious advantage over either a concentric reduction or direct drive, because it allows two choices of mounting the engine on the stringers.

EQUIPMENT and SUPPLY NEWS

Cummins J-70 and J-80 Introduced

Cummins Engine Co., Inc., Columbus, Ind., has announced the introduction of two new Diesel engines, the 70 hp. J-70 and the 80 hp. J-80. The engines are designed to bring the benefits of Diesel engine operation to equipment which previously was powered by gasoline engines. Users have found in tests conducted over the last several years that the J-70 and the J-80 can reduce fuel costs up to 65 or 70 cents per hour.

The new Diesels are 4-cycle, naturally aspirated models of 4⅛ inch by 5 inch bore and stroke with 267 cubic inch piston displacement. The J-80 develops its rated horsepower at 2500 rpm, while the J-70 is rated at 2000 rpm. Each of the engines has five main bearings of 3⅞ inch diameter. They have large 2⅝ inch diameter connecting rod journals, 1½ inch diameter piston pins and five camshaft bearings.

It is claimed that the J-70 and the J-80 have the largest bearing area of any Diesels of comparable size. They feature easily removable wet type cylinder lines for in-frame overhauls.

New Bowditch Edition Released

The American Practical Navigator, commonly known as Bowditch, U. S. Hydrographic Office publication No. 9, has been completely rewritten and released for sale. The new edition supercedes all previous editions. Bowditch, long considered the final authority on navigation, was first published in 1802.

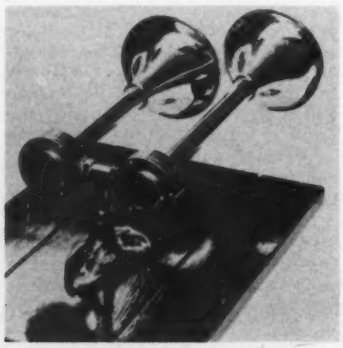
The new edition is divided into eight parts. The first deals with the background information and fundamentals; the second with piloting and dead reckoning; the third with electronics and navigation; the fourth with celestial navigation; the fifth with the practice of navigation under various conditions; the sixth with oceanography in its various navigational aspects; the seventh with weather; and the eighth with the production of charts.

The eight parts are divided into 44 chapters and are followed by 29 appendices containing reference information. Following the appendices are 34 tables with appropriate explanations.

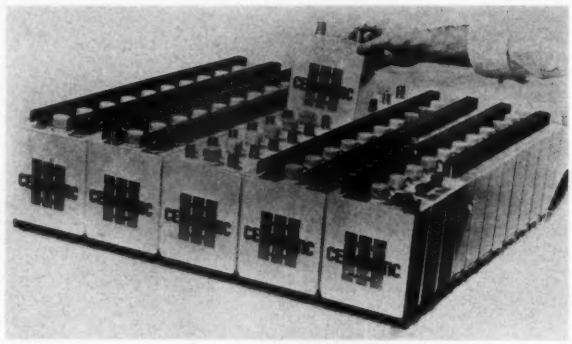
Leviathan Horns By Falcon

New, Large, Freon-powered boat horns are now being supplied for larger craft by the Falcon Alarm Co., Inc., 243 Broad St., Summit, N. J. Three single and two dual Leviathan models are available, all designed for permanent installation. The big horns have chrome plated brass construction and are available with fittings for remote control by dash-mounted choke button.

The horns require no air compressor for operation, like Falcon's self-powered portable boat horns, the larger models get power from compact cylinders of Freon gas.



New Leviathan model Freon-powered boat horns by Falcon.



Scranton Cellomatic replaceable-cell battery.

Scranton Offers Replaceable-Cell Batteries

The Scranton Cellomatic Battery Corp., Archbald, Pa. has announced a line of replaceable-cell storage batteries, especially designed for commercial marine service.

Heat-resistant cells are made of Koppers "800" Polystyrene, the cells being held in place by shock-resistant snap-on frames made of Koppers Super Dylan Polyethylene. The Polystyrene cell material provides protection against seepage of battery acid and temperature extremes, without power drain.

Cell plates are electroplated with Selenium to reduce shedding and provide lower resistance to current flow, in addition to permitting higher charge and discharge rates without shortening battery life. Provision has been made to take care of higher water demand of marine batteries without altering the basic cell design or cutting ampere ratings. The design of the new Cellomatic batteries permits many different voltages from a single installation.

The patented replaceable-cell feature permits any voltage or amperage to be set up merely by adding or removing cells. Dovetails permit permanent cell positioning yet allow instant removal, replacement or rearrangement. The feature also allows individual cells to be replaced in case of cell failure rather than replacing the complete battery. Cells may be arranged to fit varied space requirements.

Bendix Radio Station Guide

As a part of a continuing program to increase safety at sea, Bendix Marine, 8211 Lankershim Blvd., North Hollywood, Cal., has just completed a Radio Station Guide covering the Atlantic, Pacific, and Gulf coasts, and a three-disc circular computer to quickly solve speed-time-distance and navigation problems.

Sources used in compiling the Guide included six separate editions of Coast Pilots, the marine radio telephone companies, and the civilian Aeronautics Administration, in order to provide a complete listing of commercial broadcast stations, airways range beacons, ship-to-ship telephone stations, and Coast Guard radio stations on the three coasts.

In addition to call signs and frequencies, the latitude and longitude co-ordinates of the broadcast and airways stations suitable or radio direction finding are included in the Guide. Times of weather broadcasts from telephone and Coast Guard stations are also shown.

The Bendix speed-time-distance Computer has a second rotating disc to correct magnetic-to-true courses, or vice versa, and on that same side are scales converting Beaufort wind velocity ratings to miles per hour and millibars of barometric pressure to inches.

Pettit Production on West Coast

Pettit Paint Co., Inc., Belleville, N. J. has announced the inauguration of production facilities at its sales office and warehouse in San Leandro, Cal. The new production unit will produce the entire line of Pettit marine paints, varnishes and specialties, and will service an area encompassing western Canada as well as several western states.

According to the company, the new installation will provide quicker and more economical delivery of paints to consumers, dealers and distributors than possible before. With the start of manufacturing operations at San Leandro, the company's production reaches an all-time high.

Carron Net Expands Plant

Carron Net Co., Two Rivers, Wisc., manufacturers of Moby Dick netting has embarked on another expansion program. The floor space of the entire plant has been reorganized, an additional 10,000 feet of floor space completed and a warehouse added. The company feels that this will greatly improve the degree of production and the efficiency of customer service. The Carron Net Co., has been manufacturing fish netting for over a quarter of a century.

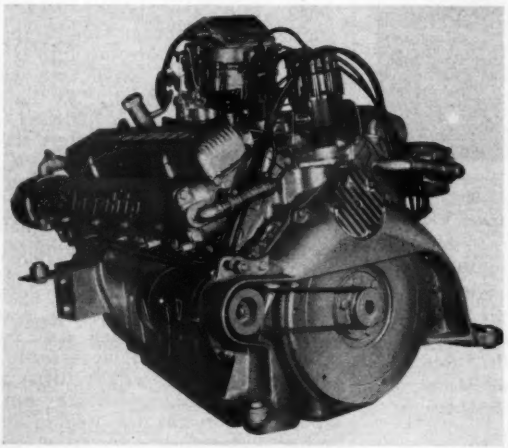
Syntron Propeller Shaft Seal

A self-adjusting, small-boat, propeller Shaft Seal, designed to stop shaft leakage and eliminate maintenance of all kinds has been developed by Syntron Co., 1305 Lexington Ave., Homer City, Pa. The MB Seal is claimed to provide leak-free sealing without continuous adjustment and to eliminate the trouble and expense of repacking messy stuffing boxes.

Syntron Seals are compact and self contained for easy installation, slipping over the end of the shaft and fastening into place with a short section of rubber hose and two hose clamps. The water kept out by the seal acts as its lubricant.

Mason RCA Sales Representative

Elmer Mason has been appointed RCA small craft equipment sales representative for the Southeastern area with headquarters in Miami, Fla., the Radio Corporation of America has announced. Mason, who is responsible for the Florida, Georgia, and South Carolina area, started with RCA in 1951 as an engineering editor. In 1952 he moved to the Engineering Products Division as an advertising copy writer, and then transferred in 1956 to Radiomarine Products advertising.



Rated 220 hp. at 4800 rpm. the heavy duty Flagship marine engine Model 220 has a bore and stroke of 3.875 x 3 and a displacement of 283 cu. in. It is available for manual or hydraulic direct drive and with 1.5:1 and 2:1 hydraulic reduction. The same model is also available at 150 hp., 3600 rpm.

New Lister-powered Safety Fish Hoist aboard New Bedford, Mass. dragger "Major J. Casey". Robert Mitchell of R. A. Mitchell Co., left, with Capt. Mike Griffiths.

Mitchell Safety Fish Hoist

The new Mitchell Safety Fish Hoist has been installed on several Massachusetts fishing vessels, including Joshua Murphy's *Rosalie F.*, Albert Hilliar's *Barbara M.*, Felicio Lourenco's *Villa-Riall*, formerly *Nellie Pet*, Mike Griffiths' *Major J. Casey*, all of New Bedford; and A. Kelly's *Sweet Sue* of Boston.

Developed and built by R. A. Mitchell Co., 104 Middle St., Fairhaven, Mass., the unit comprises a 5 hp. air-cooled Lister Diesel, driving a double 6" bronze winch head at 121 rpm. through a 14.5:1 reduction gear. The safety feature is a tripping mechanism with easily accessible bar handle, which when lightly moved, will bring the winch heads to a complete stop in one-half revolution.

The unit is furnished with a galvanized, fabricated steel stand for easy installation. The versatility of the Safety Hoist was demonstrated recently aboard the *Rosalie F.* when the fishing gear was hauled back with the unit while the trawl winch was inoperative because of main engine trouble.

Mitchell specializes in custom-made applications of Diesel driven hoists, generator sets and pumping units. The firm has just added a Jabsco pump with clutch for deck water and emergency bilge service on the *Major Casey* hoist. An HA2, 20 hp. Lister Diesel unit with unloading winch head, driving a generator, and having counter shaft for belt driven pump and air compressor, was assembled by Mitchell for installation on the *Laura A. II*, owned by Chris Aiello of New Bedford.

Twin Disc Tells Shrimp Story

"The Lowly Shrimp Spawns a Mighty Industry" is the title of the feature story in the latest issue of "Production Road", company magazine of Twin Disc Clutch Company, Racine, Wisc. How the shrimp was transformed from an exotic delicacy to one of the nation's most popular seafoods is told in the story, which also contains interesting accounts of such colorful customs as shrimp dancing and blessing of the fleet.

New Book On Fish and Ships

With rare and revealing photographs, many never before published, A. K. Larssen and Ralph W. Andrews present the commercial fishing story from the viewpoint of the fishermen themselves. From primitive Indian methods, early beach and horse seining, the photos in the new Superior Publishing Co., P. O. Box 2190, Seattle, Wash., book range to the salteries, canneries, and traps in the cod, halibut, and salmon industries.

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COST-SAVING AIR-COOLED DIESELS
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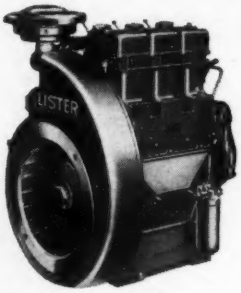

Model HA3
30 BHP @ 1800 RPM
For Auxiliary

Air-cooled Listers offer exceptional versatility: The powering of deck machinery; the generating of electricity for numerous auxiliary needs; the propulsion of smaller vessels.

IMMEDIATE STARTING at temperatures from sub-zero to 130°F is but one of a number of highly important advantages. *Dependability*, regardless of voyage conditions; trouble-free operation; economy in maintenance and fuel consumption all stem directly from Lister's simple, quality construction; exhaustive knowledge and design experience in air-cooled diesels.

Dependable Listers presently provide auxiliary power for over ¾ of New England's fishing fleet; propulsion or auxiliary power for countless craft coast to coast and the world-over.

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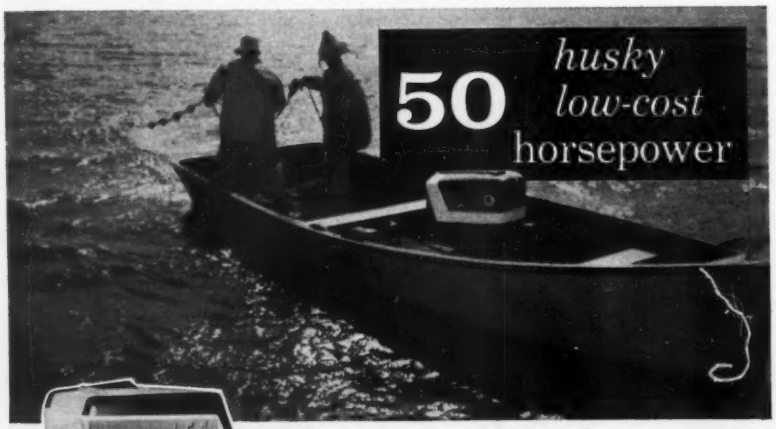
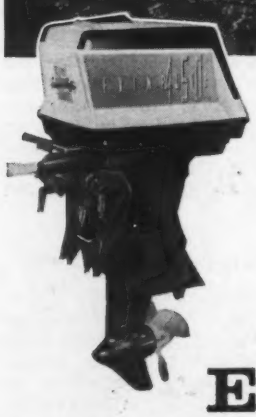
In Canada: Canadian Lister-Blackstone, Ltd., 1921 Eglinton Ave., E., Toronto 13, Ont.





Here's the one for rigs that need *real* power . . . Evinrude's great "Four-Fifty." New, compact V-4 design. 70.7 cu. in. displacement. Delivers 50 solid b.h.p. at 4500 revolutions—easily, smoothly, quietly—in toughest day-in, day-out service. See your Evinrude dealer—he's listed in the yellow pages under "Outboard Motors." Complete range of models to choose from. Evinrude Motors, 4152 N. 27th Street, Milwaukee 16, Wis. *A Division of Outboard Marine Corporation. In Canada: Mfd. by Evinrude Motors, Peterborough.*

EVINRUDE

***quiet* outboard motors**

British Experiments Extend Salmon Life

The normal life cycle of salmon is to be born, go to sea, return after two or more years to the upper parts of streams and rivers, spawn, and die. A few salmon, however, have been known to go back to the sea after spawning, and then return to spawn again—two, three, or even four more times. Why salmon should die after laying their eggs in fresh water streams has long been a mystery, but scientists of the Lancashire River Board in England believe they may have the answer plus a means to extend the lives of the fish.

The Lancashire scientists wonder if the mass death of salmon returning to the sea is needless, and if in fact, results only from exhaustion and starvation.

Salmon appear to be in good physical condition upon reaching the spawning grounds but they lose their strength and die within a few days after losing their sex products. The Lancashire men point out, once the salmon enters fresh water it stops eating. While fighting up stream, spawning, and fighting back to the sea, the fish lives off its own body, and the starvation period lasts for several months.

As an experiment, the Lancashire Board sent men with nets to the upper reaches of England's spawning rivers, as the salmon arrived in the fall of 1958. There, they caught 230 salmon, male and female, put them in tank-trucks, and hauled them to a hatchery. The eggs were stripped from the females, artificially fertilized by the males, and put into cool fresh-water tanks for 100 days to hatch.

The adult fish were then put back into the tank-trucks and hauled to the sea at Morecamp. At that point they were put into fresh-water tanks, into which, sea water was admitted gradually. At the end of five days, the water matched that of the open sea. The fish were transferred then to the open air wading pool on the beach and offered their normal diet. Most began eating immediately and new ovaries began to develop in some of the females.

Early in December the fish were tagged and given a few more days to recuperate. They were again put into tanks and carried five miles offshore and turned loose, with the hope that they will return next year. The number of deaths during the operation was few. Regardless of other differences, starvation seems to be agreed upon as one of the causes of mortality during spawning. If that problem is solved, scientists may be well on the way to extending the life of the salmon.

Menhaden Organization Considers Legislation and Inter-Group Cooperation

The Virginia Fishermen's Association, representing the entire East Coast menhaden industry, held its annual convention at Old Point Comfort, early in February.

Ross L. Leffler, assistant secretary Fish and Wildlife Service, Department of the Interior, urged the menhaden fishermen and processors to join forces with recreational and civic groups in backing research aimed at increasing the yield of seafood in its known habitats.

Work with Recreational, Civic Groups

He told members of the Association that they have a common interest with such groups in the preservation of estuarine areas necessary as nursery grounds for certain commercially important marine life. "Both groups are interested in increasing seafood yields," he said. "Act to keep development projects from damaging these areas for fish, shellfish, he continued. Join in efforts to reduce pollution and halt siltation from soil erosion.

"The greatest menace to marine life in these areas are development projects, unwise mosquito control, pollution and siltation, and deadly chemicals used to combat insects and weeds. You best solve your own problems when you work with others to resolve the basic questions which generally confront our communities", he told his audience.

Nearly 100 members at the first session proposed changes in vertical clearance of fixed structures over the Atlantic and Gulf intracoastal waterways. C. Jackson Simmons of the law firm Dunton, Simmons, and McLeod of White Stone plus C. W. Robin, Corps of Engineers, Norfolk District were the speakers. The Engineers are presently undertaking a one-year study on the feasibility of reducing fixed-span waterway clearance requirements from 80 to 55 feet. This is backed by state highway departments and automobile associations, but it is opposed by the Virginia Fishermen's Association many of whose members operate boats with masts as high as 70 feet above the water line.

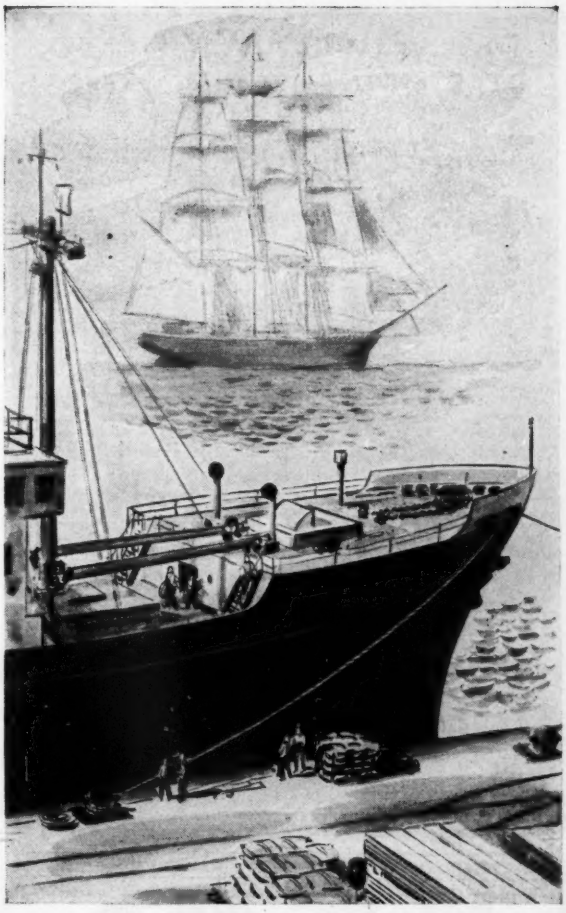
Legislation Being Considered

Charles E. Jackson, general manager of the National Fisheries Institute, and William B. McLeod of Dunton, Simmons and McLeod told of a Congressional move to eliminate the fishing industry exemption from federal wage and hour regulations. They said bills have been introduced to raise the minimum wage from $1 to $1.25 or $1.50 an hour, to reduce the standard work week from 40 to 35 hours, and to rule work over eight hours per day instead of over the present 40 hours a week as overtime. Jackson said that only fish canners are now under the wage hour provisions. If the bills go through, the industry will have to modify its present system of compensation based on shares of the catch.

Congress is considering bills to promote maintenance of American fishing fleets hindered by foreign competition, to provide medical care for fishermen, to classify surplus fish products for export under the Agricultural Trade Development and Assistance Act of 1954, and to impose minimum standards for imported shellfish equal to those imposed on domestic varieties. Legislation may also be introduced to aid starfish control, and to permit building of fishing vessels in foreign countries for American operators, Jackson said.

A panel on the "Uncertain Status of Fishermen as Seamen; Need for Corrective Legislation" was moderated by C. Jackson Simmons and included Harry E. McCoy, Norfolk admiralty lawyer; Arthur E. Brunck of the Home Insurance Co.; Robert T. Hollinger, legislative legal liaison officer, U. S. Public Health Service; and David H. Hart, chairman of the National Fisheries Institute Boat Committee.

Menhaden fishermen were eligible for marine hospital



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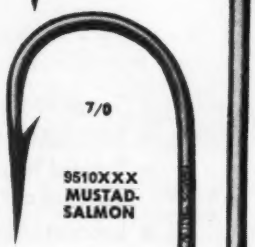

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treatment and workmen's compensation as seamen, until three years ago when the Public Health Service ruled otherwise. Their legal status has been doubtful ever since then, the panelists said.

A six-man, Department of Interior panel discussed Federal research and suggested changes for the next decade. D. L. McKernan, director of the Bureau of Commercial Fisheries said that a storehouse of knowledge is necessary, and this storehouse must be added to constantly. Biological factors effecting the optimum harvest were told by Dr. J. L. McHugh, chief, Biological Research Division, and former head of the Virginia Fisheries Laboratory. Steward Springer, chief, Branch of Exploratory Fishing and Gear Research, Division of Industrial Research and Services suggested that the industry could operate more efficiently if it would use other fish, such as thread herring, as raw material.

Harvey W. Smith of Beaufort, N. C. was elected to succeed outgoing president H. R. Humphreys, Jr. of Whitestone, Va. Joseph C. Jett, Jr. of Reedville, Va. was named vice-president. Ammon G. Dunton of White Stone was retained as general counsel of the Association, and W. A. Mercer, also of Whitestone as secretary-treasurer. Continuing on the executive committee were Smith, Mercer, Joseph Jett, G. H. McNeal Jr. and T. H. Jett of Reedville; H. R. Humphreys, Jr.; R. L. Haynie, Jr. of Wildwood, N. J.; Otis H. Smith of Lewes, Del.; and George R. Wallace of Morehead City, N. C.

Power Blocks in Menhaden Operations

(*Continued from page 9*)

In most cases where the power block has been introduced, size and style of nets are affected. With decreases as much as 300-400 percent in time required to haul the net, obviously fishermen begin to think in terms of longer and deeper nets. The power block is having an affect on design and arrangement. Wood booms are being replaced by newly-designed steel booms, such as the Puretic Power Boom. This steel boom is provided with a gooseneck extension on the end for supporting the power block clear of the boom. It is fitted with a hydraulic topping lift and hydraulically-actuated vangs. Hydraulic cylinders mounted on the side of the boom keep tension on the vangs at all times and allow the boom to be positioned in the most convenient manner for depositing the net on deck as it comes over the power block. The power slewing, together with the hydraulic topping lift, provide flexibility—both for use with the power block and in brailing.

Some of the adapted boats have other design innovations: location of the captain's controls forward in a control station, where he can steer and handle the throttle without depending on an engineer, and with greater visibility for setting the net and handling the boat alongside the steamers; a double skeg arrangement underneath, with propeller located in the tunnel, to facilitate use of the new system by keeping the net out of the propeller.

Continuing his development of new apparatus, Puretic has patented an oscillating mechanical boom, which stacks the net while it is being retrieved.

As to maturity of the power block, designer Puretic feels that the "apparatus and method have now definitely come of age in terms of time, volume and variety of application of models, to basic gear and types of fishing and fisheries in a number of areas."

"With the power block, the power crane comprises a complete unit for net handling on purse boats. It is fully mechanized to readily permit full control and maneuverability, including easy adjustment of height. The entire apparatus occupies a minimum of space on a boat, and is free of projecting members that could injure men or snag ropes and other gear."

BOAT CATCHES

For Month of February

Hailing fares. Figure after name indicates number of trips.

BOSTON (Mass.)

Agatha (2)	92,200	Minnie (2)	174,000
Agatha & Patricia (1)	60,800	Mother Frances (2)	81,000
Annie & Lucy (1)	900		
Arlington (2)	168,900	Nautilus (2)	83,600
Atlantic (2)	126,400	Notre Dame (2)	36,600
Bay (2)	116,900	Ohio (2)	80,500
Bonnie (2)	173,100	Olympia La Rosa (4)	90,900
Brighton (3)	165,300		
Buzz & Billy (1)	14,900	Pam Ann (2)	114,200
		Patty Jean (2)	200,200
Cambridge (2)	154,900	Phantom (2)	183,100
Caracara (4)	111,600	Philip & Grace (1)	60,200
Carmen & Vince (4)	146,200	Plymouth (2)	95,300
Charlotte M. (2)	82,100	Puritan (2)	106,800
Clipper (3)	81,200		
Columbia (2)	89,800	Racer (2)	136,400
Comet (3)	149,500	Raymonde (3)	170,200
		Red Jacket (2)	228,100
Dolphin (1)	27,200	Rosa B. (2)	130,100
		Rush (3)	217,800
Eagle (1)	33,600		
Ethelena (3)	86,000	St. Angelo (3)	83,400
		St. Marco (3)	99,100
Flying Cloud (3)	258,000	St. Victoria (1)	37,800
		Salvatore (4)	10,000
Geraldine & Phyllis (2)	67,800	Santa Rita II (1)	11,600
Grace & Salvatore (3)	162,600	Star of the Sea (1)	51,200
		Swallow (2)	107,500
Hazel B. (2)	120,000	Sweet Sue (1)	6,600
Jane B. (2)	137,400	Terra Nova (2)	117,500
J. B. Junior (2)	128,200	Texas (2)	102,900
Jeanne D'Arc (2)	32,500	Thomas D. (2)	55,900
Joseph & Lucia (1)	49,700	Thomas Whalen (2)	119,700
Josephine P. II (2)	43,900		
		Villanova (3)	95,900
Leonard & Nancy (2)	66,400		
		Weymouth (2)	131,300
Magellan (2)	73,900	Wild Duck (2)	103,900
Manuel F. Roderick (2)	76,600	Wm. J. O'Brien (2)	170,900
Mary & Joan (2)	123,800	Winchester (2)	121,800
M. C. Ballard (2)	77,300	Wisconsin (2)	186,700
Michigan (2)	170,000		

GLOUCESTER (Mass.)

Acme (3)	3,000	Linda B. (6)	5,000
Agatha (1)	20,000	Little Flower (5)	18,000
Agatha & Patricia (2)	28,000		
American Eagle (2)	12,500	Margaret Marie (1)	500
Anna Guarino (6)	5,100	Marianna II (1)	3,000
Ave Maria (2)	2,000	Mary Ann (3)	21,500
		Mary Rose (3)	110,000
Blue Waters (4)	75,000	Morning Star (3)	14,000
Bonaventure (1)	47,000		
Bonnie Bill (5)	4,500	Nancy & Maria (6)	5,500
Bonnie Breaker (2)	334,000	Natale III (1)	18,000
Cape Cod (4)	4,500	Olympia (3)	38,000
Cigar Joe (5)	26,000		
Curlew (1)	170,000	Philip & Grace (1)	90,000
		Pilgrim (3)	147,900
Dawn (1)	500	Puritan (1)	60,000
Dolphin (1)	13,000		
Doris F. Amero (2)	6,500	Regina Maria (2)	83,000
		Rosalie S. (3)	26,000
Eagle (1)	67,000	Rose & Lucy (1)	1,000
Emily H. Brown (2)	285,000	Rosemarie (1)	17,000
Estrela (1)	35,000	Rosie & Gracie (5)	38,000
Eva II (3)	3,500		
		St. Anna Maria (5)	22,500
Flow (1)	3,700	St. Cabrini (1)	3,000
Frances R. (6)	29,200	St. John (3)	2,500
		St. Joseph (4)	62,500
Gaetano S. (4)	108,000	St. Mary (4)	22,500
Grace & Salvatore (2)	16,000	St. Nicholas (1)	175,000
		St. Peter (2)	16,000
Hazel B. (1)	7,000	St. Peter III (5)	35,000
Holy Family (1)	55,000	St. Providenza (6)	6,500
Holy Name (2)	6,000	St. Rosalie (3)	47,000
		St. Terese (6)	27,000
Ida & Joseph (3)	33,500	St. Victoria (2)	31,000
Immaculate Conception (3)	11,500	Salvatore & Grace (4)	21,000
		Sandra & Jean (3)	9,000
Jackie B. (5)	24,000	Sandra Jane (1)	2,000
J.B.N. (1)	15,000	Santa Lucia (3)	3,000
Jennie & Lucia (2)	14,000	Sebastiana C. (5)	60,500
Joseph & Lucia (2)	82,000	Serafina N. (1)	5,000
Judith Lee Rose (1)	315,000	Serafina II (4)	25,000
		Sunlight (1)	168,000
Kingfisher (1)	202,000		
		Villanova (1)	190,000
Lady of the Rosary (2)	37,000	Virginia Ann (3)	7,500
Leonard & Nancy (1)	10,000		

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Althea (4)	46,100	Launn (3)	30,500
Anastasia E. (3)	43,500	Lubenray (1)	20,000
Annie Louise (1)	5,300		
Annie M. Jackson (4)	39,500	Major J. Casey (2)	25,300
		Malvina B. (3)	40,700
Barbara M. (2)	57,500	Mary E. D'Eon (1)	8,800
		Mary J. Landry (3)	37,000
Capt. Bill II (2)	47,600	Mary Tapper (2)	44,500
Carl Henry (1)	20,000	Midway (2)	39,100
Carol & Estelle (2)	23,500	Miriam A. (2)	43,400
Catherine & Mary (2)	34,200	Molly & Jane (2)	19,700
Charles E. Beckman (2)	23,400	Monte Carlo (2)	32,000
Christina J. (2)	26,200		
Christine & Dan (2)	23,200	North Sea (1)	12,000
Comber (1)	8,700		
Connie F. (1)	18,000	Pauline H. (2)	117,500
		Porpoise (2)	34,200
Eugene H. (2)	45,300		
		Rita (2)	10,000
Falcon (3)	48,900	Roberta Anne (4)	63,800
Friendship (2)	32,600	Robert Joseph (1)	21,300
		Rosalie F. (2)	36,900
Gannet (2)	54,900	Rush (2)	38,000
Growler (2)	58,800	Russell S. (1)	6,500
Harmony (3)	43,000	Shannon (2)	35,800
Hope II (2)	27,300	Smilyn (2)	20,300
		Solveig J. (2)	52,000
Invader (2)	46,500	Stanley B. Butler (2)	77,000
Ivanhoe (1)	7,200	Sunbeam (2)	23,000
Jacintha (1)	29,500	Theresa & Jean (2)	46,500
Janet & Jean (2)	25,500		
John G. Murley (2)	61,000	Valiant Lady (1)	13,000
Julia DaCruz (2)	24,800	Venture I (3)	91,500
		Viking (2)	34,500
Katie D. (2)	71,500	Villa-Riall (2)	61,400
Laura A. II (2)	34,500	Whaler (2)	40,800
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Adele K. (2)	14,800		
Aloha (1)	10,000	Linus S. Eldridge (2)	19,700
Alpar (2)	7,100	Louise (2)	22,400
Amelia (2)	22,200		
		Malene & Marie (2)	18,500
Babe Sears (1)	7,000	Mary Ann (2)	22,000
Baltic (2)	15,000	Mary J. Hayes (2)	14,500
Barbara & Gail (2)	15,500	Moonlight (1)	11,200
B. Estelle Burke (1)	10,500		
Brant (1)	8,300	New Bedford (2)	20,000
Bright Star (2)	20,100	Newfoundland (2)	19,500
		Noreen (2)	20,000
Camden (2)	9,500		
Catherine (1)	5,000	Pearl Harbor (2)	22,200
Catherine B. (2)	18,500	Pelican (2)	17,200
Catherine C. (1)	7,000	Polaris (1)	8,500
Charles S. Ashley (2)	20,000		
Clipper (2)	22,900	Ruth Lea (2)	20,600
		Ruth-Moses (2)	22,000
Dartmouth (2)	21,000		
Debbie Jo-Ann (2)	16,200	Sandra Jane (2)	22,200
		Sea Ranger (2)	19,500
Edgartown (1)	11,500	Sippican (2)	20,400
Eleanor & Elsie (2)	17,400	Snoopy (2)	19,000
		Stanley M. Fisher (2)	22,000
Fairhaven (2)	22,200	Stephen R. (1)	7,000
Flamingo (2)	16,000		
Fleetwing (1)	9,500	Ursula M. Norton (2)	22,600
Florence B. (2)	18,000		
		Vivian Fay (2)	21,200
Geraldine (2)	22,400		
		Wamsutta (1)	2,000
Hilda Garston (2)	22,400	Whaling City (2)	21,600
Jerry & Jimmy (2)	8,200		

STONINGTON (Conn.)

America (1)	3,000	Lt. Thos. Minor (8)	7,400
Bette Ann (7)	7,300	Little Chief (1)	600
Carl J. (8)	12,500	Marise (5)	4,200
Carol & Dennis (1)	2,000	Old Mystic (1)	400
Carolyn & Gary (7)	6,900	Our Gang (1)	3,000
Connie M. (6)	5,100	William B. (5)	6,400
Jane Dore (7)	5,400		

ROCKLAND (Me.)

Araho (2)	97,000	Margaret Jean (2)	3,500
Elin B. (2)	53,000	Myrt II (4)	3,300
Ethel B. (3)	9,000	Ocean (2)	510,000
Flo (1)	33,000	Rhode Island (2)	16,500
Flow (1)	8,500	Squall (2)	480,000
Helen Mae II (3)	36,900	Storm (2)	520,000
John J. Nagle (3)	186,000	Surf (2)	600,000
Little Growler (2)	25,500	Tide (1)	190,000
Louise Jean (1)	15,000	Wave (1)	240,000
Mabel Susan (2)	9,200		

Scallop Landings (Lbs.)

Pocahontas (1)	9,500

PORTLAND (Me.)

Alice M. Doughty II (6)	58,900	Medan (1)	210,000
Alton A. (2)	10,400	Ocean Life (1)	190,000
Andarte (2)	49,000	Quincy (1)	180,000
Bois Bubert (1)	2,100	Rosalie S. (1)	5,000
Crescent (1)	1,700	St. George (2)	390,000
Challenger (1)	1,500	Surfman (1)	800
Courier (2)	152,000	Susan L. (1)	400
Dorothy & Ethel II (3)	10,500	Theresa R. (3)	128,000
Elinor & Jean (4)	24,800	Vagabond (3)	31,900
Gulf Stream (2)	100,000	Vandal (3)	67,900
Ida & Joseph (1)	3,500	Wawenock (1)	241,000
Lucille B. (1)	2,300	Winthrop (1)	53,000
Mary & Jennie (5)	12,900		

Scallop Landings (Lbs.)

Francis L. MacPherson (2)	16,600	Sylvester F. Whalen (2)	22,000

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Andrea G. (3)	145,200	Joseph S. Mattos (2)	83,300
Austin W. (3)	153,000	Lady of Good Voyage (3)	139,200
Carol Jack (4)	219,000	Manuel P. Domingoes (2)	85,000
Edith L. Boudreau (4)	241,400	Ruth & Helen (2)	14,500
Evelina M. Goulart (3)	122,300	Santa Maria (4)	146,000
Felicia (3)	149,500	Tina B. (3)	137,400
Golden Eagle (3)	162,000		

Scallop Landings (Lbs.)

Beatrice & Ida (2)	14,500	Muskegon (2)	11,700
David A. (1)	11,000	Norseman (2)	15,400
Enterprise (1)	7,200		

WOODS HOLE (Mass.)

Arnold (3)	12,900	Lubenray (1)	4,900
Carole Ann (3)	8,800	Marie & Katharine (1)	15,600
Christina (1)	500	Mary E. D'Eon (1)	1,300
Falcon (1)	4,100	Morning Star (4)	15,600
Frankie & Jeanne (2)	10,000	Roann (2)	21,000
Gertrude D. (3)	18,900	Southern Cross (2)	5,400
Hope II (1)	2,300	Three Bells (1)	2,200

Fisheries Institute Convention in April

Five of the nations largest chain stores will be represented on a panel of speakers on Food Store Day, a feature of the National Fisheries Institute's 14th annual convention, according to president L. Vernon Drape, New Bedford and Fall River, Mass. This year the convention will be held at the Commodore Hotel, New York, April 10 to 15.

New Book Charts Draggerman's Life

Capt. Ellery Thompson, draggerman, artist, and author relives his forty years of deep sea fishing off the Atlantic Coast in "Come Aboard the Draggers". In it he tells of wrecks, rescues, rum running, and hurricanes, from personal experiences. Thompson's recollections, impressions, characters and philosophy make "Come Aboard the Draggers" a very interesting book. Thompson lives in Stonington, Conn. aboard his dragger.

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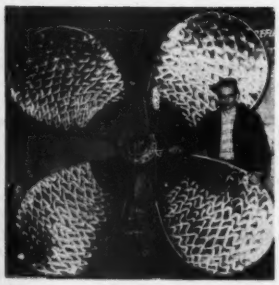

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FOREIGN BAILINGS

ELECTRICAL FISHING EQUIPMENT has been installed on a Moroccan sardine vessel. Electrical fishing consists of emitting electrical currents of certain intensities in the water which attract fish and deprives them of all reflexes for about 2-3 minutes, time needed to capture them either by a suction pump or by net. The Moroccan vessel is equipped with a suction pump and a "cannon."

The suction pump has a rubber tube 10" in diameter and lowered down to 243 feet which picks up the fish attracted by an anode located at the end of the tube.

The cannon is a device for shooting an electrode, attached to a floating cable, for a distance up to 328' into the middle of a surface school of fish. When the electrode hits the water, the vessel's generator starts transmitting an electrical impluse.

In less than a second the fish are gathered around electrode within a radius of 33'. The vessel then approaches the fish and hauls them in by suction or by net.

MEXICO'S FISHING FLEET has increased. In the 15-month period of March 1957 to June 1958, the Mexican shrimp fleet increased 40 percent from 790 to 1107 vessels.

As of June 30, 1958 the Mexican Bureau of Fisheries had registered 7,762 fishing boats, or 3,500 more than had been registered by the same date in 1957.

About 80 percent of the Mexican fishing fleet consists of boats of 3 net tons or less. These are principally dugout canoes and skiffs, many of which are powered with outboard motors.

A SEVEN-YEAR PLAN has been started by Russia. In the new plan for the Soviet Union's economy for the period from 1959 to 1965, it is stated that the catch of fish shall be increased by 62 percent from 2.85 million metric tons in 1958 to 4.6 million tons in 1965. The increase will be achieved in part by bringing into use new fishing areas in the open ocean.

The increase during the 1954-58 period has averaged 135,000 tons a year, but the planned increase is about 250,000 tons yearly. The published part of the plan does not say anything about expanding the construction of the fisheries fleet, but according to reports in the press it is to be increased by 70 percent.

EUROPEAN OYSTERS have been introduced with promising results to Canadian Atlantic waters by shellfish scientists of the Fisheries Research Board. The oysters used in the experiment we obtained in North Wales and planted in various locations in the Maritime Provinces.

Not only did a large percentage survive the winter, but an excellent growth rate was shown over a 6-month period. Oysters native to the Maritimes can survive only in the waters of the Bay of Chaleur, the Northumberland Strait, and the Bras d'Or Lakes of Cape Breton Island where the summer water temperatures are higher than elsewhere in the Atlantic region.

What the Board scientists are trying to determine is whether the European oysters which have been transplanted are hardy enough to provide an oyster industry in colder water, such as that along the eastern shore of Nova Scotia.

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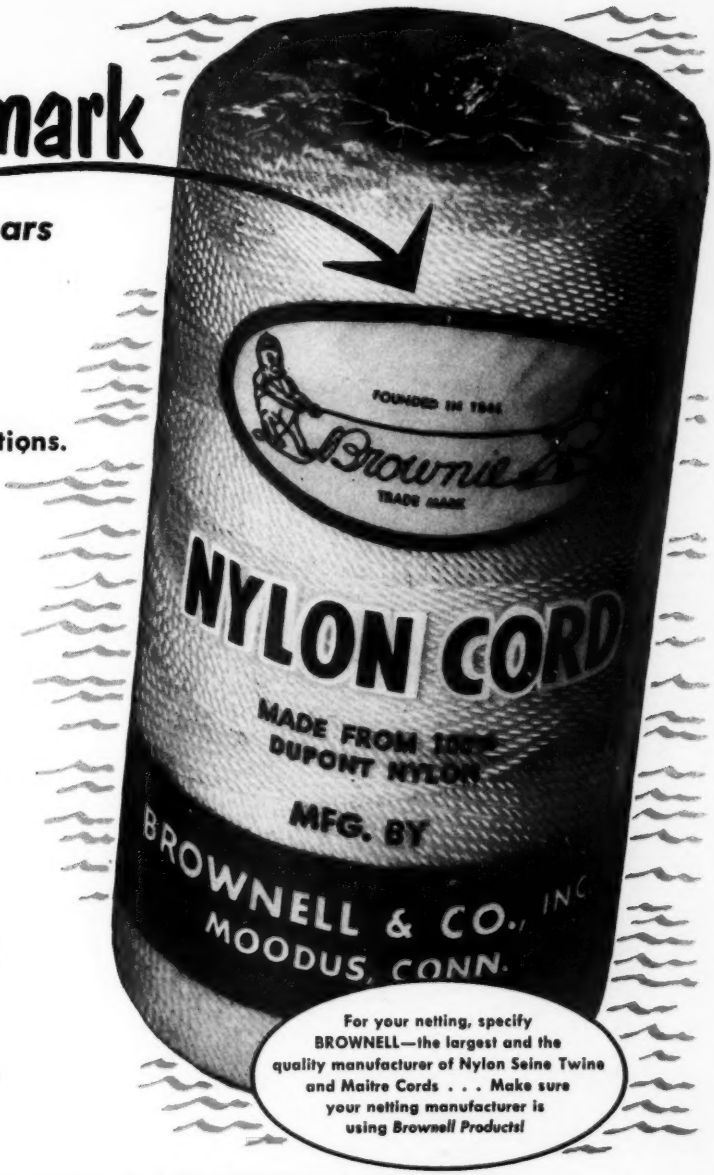
means you've got the very finest nylon twines and maitre cords for fishing operations.



Brownell Nylon Seine Twines, Maitre Cords and Ropes are made especially for you from high tenacity 100% DuPont Nylon yarns. But quality yarns is just the *beginning* of the *Brownell Story.* For more efficient performance, all our Nylons are engineered for the specific purposes they are to be used for. Our rigid factory specifications on all our Nylons call for the *exact twist counts* to assure you the maximum strength plus the maximum yardage. And all our Nylons are processed to prevent excessive untwisting.

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For your netting, specify BROWNELL—the largest and the quality manufacturer of Nylon Seine Twine and Maitre Cords . . . Make sure your netting manufacturer is using *Brownell Products!*

You'll find the Brownie Trademark on the largest selection of Nylons for the Fishing Industry. Here are just a few:

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- Spun Nylon Seine Twine
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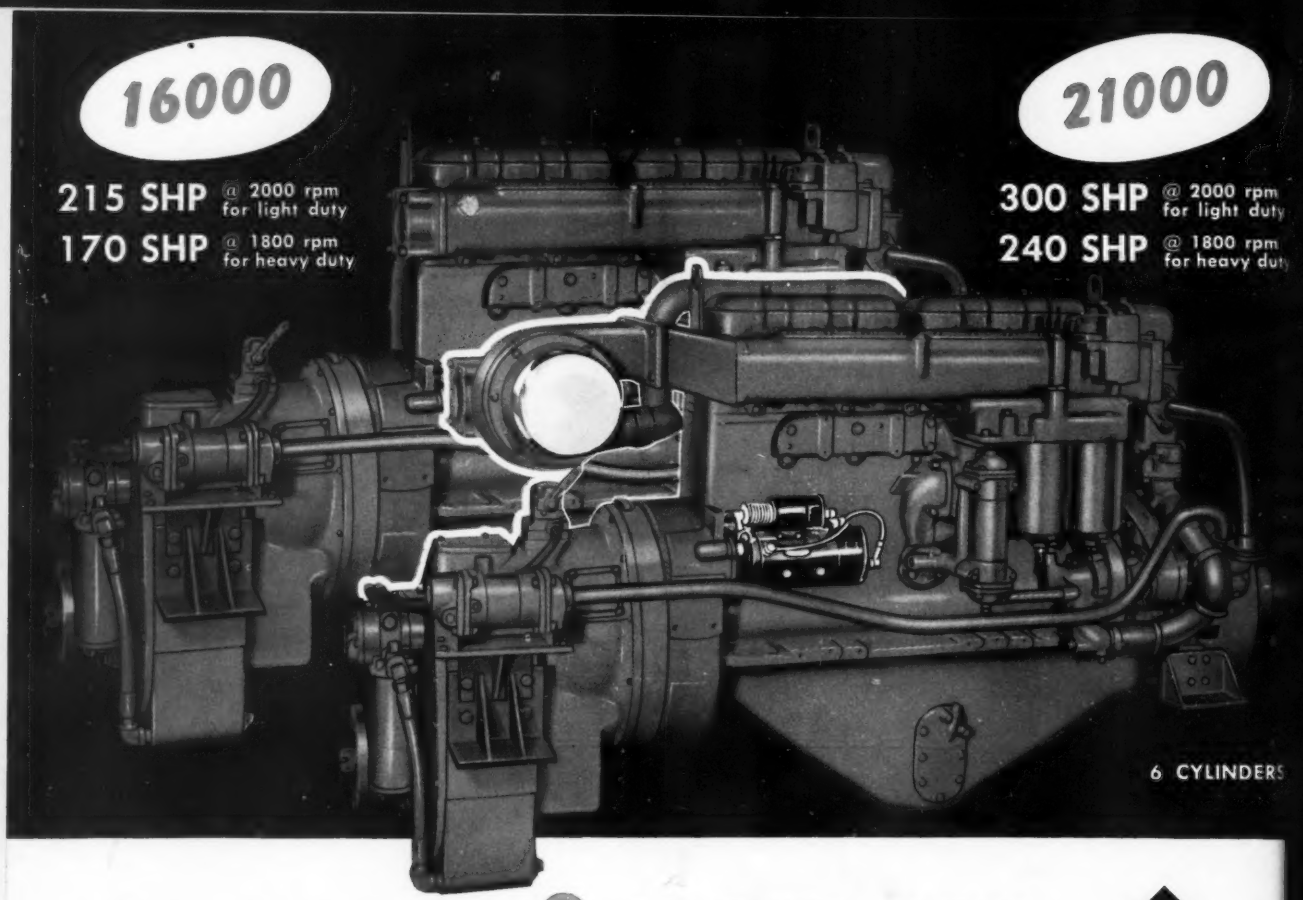
16000
215 SHP @ 2000 rpm for light duty
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300 SHP @ 2000 rpm for light duty
240 SHP @ 1800 rpm for heavy duty
6 CYLINDERS

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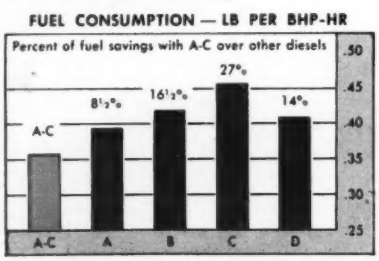
Compare their fuel economy to others in their class. Economy like this gives you from 1 to 2½ hours of extra performance every day.



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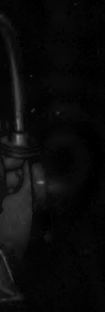

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